

**DETERMINING THE COST-EFFECTIVENESS OF ESTABLISHING
A COLLEGE STUDENT LIVE-IN PROGRAM**

Fire Service Financial Management

BY: Ronald E. Clymer, Assistant Chief
City of Dover Fire & Rescue Service
Dover, New Hampshire

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ABSTRACT

The City of Dover Fire & Rescue Service is a career department providing fire suppression, emergency ambulance service, and other related services. From the period of 1982 – 1998, the department experienced a 215% increase in calls for service, however, staffing has remained the same. To alleviate the resulting staffing shortage a student live-in program was proposed.

The problem is that no guidelines have been established for starting and maintaining the college student live-in program and no cost evaluation of the program was completed. The purpose of this paper was to examine the proposed college student live-in program to establish program requirements and to determine its cost-effectiveness over traditional hiring methods.

The project employed evaluative research methodologies to answer the following two questions: What requirements must be met to start and maintain a college student live-in program for the City of Dover? In meeting these requirements, what was the cost-effectiveness of using college students for staffing rather than the traditional staffing method of hiring full-time employees?

The research procedure employed was to determine what national guidelines or standards have been established to follow to implement a student live-in program. Finding none, a survey instrument was used to establish criteria for implementing a student live-in program. Building construction costs for the student's living quarters and program operating costs were developed to create a two-year budget for the student program. A two-year budget was also developed for hiring four full-time employees and a cost comparison of the two options was completed.

The major finding of this study was that the cost for implementing and operating the student live-in program for the first two years was \$288,247. The cost of hiring four full-time employees was \$395,217. The total estimated cost savings in starting and maintaining a student live-in program was \$106,970 in the first two years.

The recommendations of this research was that the city should proceed with its plan to use college students for staffing emergency equipment and build the addition to the South End Fire Station to house the students. Further, it was recommended that the fire department administration gain support for the program from union officials, City Council members, and officials from the University of New Hampshire.

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INTRODUCTION

The City of Dover Fire & Rescue Service is a career department providing its citizens and visitors with a wide variety of services. Such services include fire suppression, advanced cardiac life support transport ambulance service, natural and man-made disaster preparedness and mitigation, hazardous material mitigation and other non-emergency type services. From the period of 1982 – 1998, the department has experienced a 215% increase in calls for service. However, the on-duty staffing in 1998 was the same as in 1982 (D. Bibber, personal communication, April 7, 1999).

The increased calls for service created a shortage in staffing for fire and emergency medical responses. To alleviate the staffing shortage, the Fire Chief proposed implementing and maintaining a college student live-in program, whereas college students, attending the University of New Hampshire, would be given housing in exchange for working as a Firefighter and Emergency Medical Technician.

The problem is that no requirements have been established for starting and maintaining a college student live-in program for the Dover Fire & Rescue Service. As such, no quantitative cost-effective evaluation has been examined to verify the financial superiority of the student live-in program over the traditional staffing method of hiring full-time employees.

The purpose of this paper was to examine national standards or guidelines that would provide direction for initiating a student live-in program. Finding none, existing student live-in programs from around the country were studied to ascertain the requirements for developing a student live-in program for the Dover Fire & Rescue Service. Once the requirements were determined, this information was used to determine the cost of

implementing a student live-in program. The cost of the student live-in program was compared with the cost of hiring four full-time employees. This cost comparison was used to determine the cost-effectiveness of the student live-in program as a method of increasing staffing. The project employed evaluative research methodologies to answer the following two questions:

1. What requirements must be met to start and maintain a college student live-in program for the City of Dover?
2. In meeting these requirements, what was the cost-effectiveness of using college students for staffing rather than the traditional staffing method of hiring full-time employees?

BACKGROUND AND SIGNIFICANCE

The City of Dover is spread over 28.3 square miles in the Seacoast area of New Hampshire. With a population of 26,800 people, Dover citizens and its visitors are provided fire protection and advanced life support (ALS) services by a full-time career department. Dover currently has two fire stations, Central Fire Station, and South End Fire Station. Central Fire Station, built in 1899, houses the first responding fire apparatus for the downtown and the north end of the city. The first due ALS ambulance for the entire city also responds from this station. South End Fire Station, built in 1967, houses the first responding fire apparatus for the south end of the city, the west end industrial park, and the turnpike. It also houses the first due aerial platform, the back up ALS unit, the rescue boat, and the medium-duty rescue vehicle.

In 1988, the City of Dover, New Hampshire Planning Department developed the City of Dover Master Plan ("City of Dover"). Included in this plan were the projected needs for

future fire station locations. The plan outlined the need to build an additional fire station in the north end of the city, in addition to maintaining Central Fire Station and South End Fire Station.

As a result of a continuous building boom in the north end of the city, the city secured a parcel of land in the north end of the city in 1997, to build the proposed North End Fire Station. It was during discussions with the City Council about staffing the proposed North End Station that questions arose about the current staffing concerns for the Fire & Rescue department. In response to these concerns, the Fire Chief reminded the City Council of his proposal of initiating a college student live-in program to bolster staffing. The Fire Chief knows that “today’s fire service administrator must be alert to the many external and environmental factors that influence spending, and must be able to provide alternatives or options to counteract any reduction to his budget” (H. Carter, 1989, p. 21).

The proposed purpose of the college student live-in program was not to offset the need to hire the proposed eight additional firefighters and four additional fire officers to staff the proposed North End Station. Rather, it was to bolster the current suppression staffing to meet the increased demands for service. It was the intention of the city to offer room and board to college students, attending the University of New Hampshire (UNH), in return for shift coverage of fire and ambulance equipment. The main campus of UNH is located about five miles from the South End Fire Station, the proposed location where the students would be housed.

To accomplish this, an addition to the South End Fire Station to house the college students would need to be built. The City Council, within the Capital Improvement Program (CIP) Budget for the City of Dover, FY2000 – FY2006 (“Capital Improvement Program,”

1998), designated \$260,000 for the living space addition to the South End Fire Station. The proposed addition was scheduled for construction in FY2001.

The modern staffing history of the Dover Fire & Rescue Service indicates a peak staffing of 13 personnel per shift in the late 1970's. During that time, the department responded to less than 1,000 calls for service and provided only fire related services. In the early 1980's, the fire department assimilated emergency medical services, various extrication and rescue services, and Emergency Management from other city departments. Since 1981, all Fire & Rescue employees have been required to be cross-trained for both fire suppression activities and emergency medical care. The department's staffing was reduced to nine personnel per shift in 1982, as part of a collective bargaining agreement, to accommodate a reduced work week schedule. The workweek was reduced from 56 hours a week to the current schedule of 42 hours per week (N. Courtney, personal communication, April 29, 1999).

From the period of 1980 to 1986, calls for service increased from 1,381 to 3,376, a 144% increase ("Annual Report," 1987). As such, in 1986, staffing was increased to 10 personnel per shift to handle the increased calls for service. In July of 1991, staffing was again reduced to nine personnel per shift because of budget cuts resulting from an economic downturn in the northeast. The current staffing of the Dover Fire & Rescue Service remains at nine suppression personnel per shift. This, aside from the fact that calls for service has steadily risen to a peak of 4,341 calls for service in 1998 ("Sunpro," 1995).

Current projections, based on the first quarter of 1999, indicated that the department will experience a 5% increase in total calls for service in 1999 ("Sunpro," 1995). Although "projections... are a necessary step in overcoming myopic attitudes often exhibited in the

annual budget process” (Chapman, 1987, p. 117), repeated attempts to increase staffing, showing increases in demand for service, have proved unsuccessful. Each attempt to hire additional personnel through the normal budget process has been denied because of continuing citywide budget constraints.

It was believed by the Fire Chief and the City Council that the initiation of a college student live-in program would offset the need to hire additional personnel to meet the increased demands for service. Further, it was believed that by investing the money into the building addition at the South End Fire Station, rather than in the cost for personnel salaries and benefits, the student live-in program would prove to be a cost-effective way to increase staffing. The completion of this project will identify the issues related to starting and maintaining a student live-in program. Once identified, this project will also help Dover’s City Council and administrators to examine the cost-effectiveness of the student live-in program as compared to the traditional staffing method of hiring full-time employees.

It should be noted that the Dover Fire & Rescue Service does not use volunteer firefighters or Emergency Medical Technicians to bolster staffing, as is common in many fire departments. While the department does maintain a small Call Force, members who make up the call force are usually residents of the community who have passed the department’s hiring process and are waiting for full-time employment with the department. Currently there are two members on the Call Force, with the more senior of the two call members being a member for just over one year. Peak staffing of the Call Force over the past ten years has been four personnel.

To be eligible for membership on the Call Force a candidate must pass the department’s written exam, physical agility test and interview process and must be certified

as a New Hampshire Firefighter Level I and also be a Nationally Registered Emergency Medical Technician – Basic. Call Force members are used exclusively for callback in case of a major event and are never used to fill scheduled or unscheduled vacancies of full-time personnel.

This research project was completed in accordance with the applied research provisions of the Executive Fire Officer Program of the National Fire Academy. This paper focused on problem solving using Unit VII of the Fire Service Financial Management course, titled Alternative Funding. Specifically this unit focused on analyzing essential elements of alternative funding sources and assessing the value of these sources by examining their financial advantages and disadvantages.

LITERATURE REVIEW

A literature review was performed to examine pertinent published material with respect to programs where college students were used to staff emergency fire and ambulance apparatus in exchange for free room and board. To compile this information, resource material was obtained from the Learning Resource Center at the National Fire Academy, the Dover Public Library, the City of Dover Fire & Rescue Service library, the Dover Planning Office and private home libraries. Extensive research was done on the Internet and fire service trade journals to find applicable published material about student live-in programs and to identify organizations and colleges using students to staff fire or ambulance vehicles. The Internet and electronic correspondence was also used to gather supplementary information necessary for the completion of this research paper.

The Executive Fire Officer of today is continually looking for ways to meet the increased demands for service while maintaining a funding level for personnel and equipment that the

community is willing and able to fund. “Doing-more-with-less” has become the buzzwords of the 90’s. As such, administrators are invariably seeking creative ways to meet these increased demands for service without significantly increasing their budget.

Coleman described this process as a “constant local government quest for cost-effective ways of achieving the various aspects of fire protection, including public safety officers, combination departments, regionalization and the development of intervening strategies” (1990, p. 47). Three of the four cost-effective methods of providing fire protection described by Coleman involved alternative systems of using personnel. This was not surprising because “the budget for a paid-labor fire department is composed mostly of salaries – 90 percent, in fact. This is a constant and fairly straightforward fact” (Brunacini, 1992, p. 28).

Therefore, to make meaningful inroads into meeting the increased demand for service, while maintaining an acceptable cost for these services, innovative administrators must explore alternative staffing methods. One such alternative staffing method practiced in a limited number of communities across the country is that of utilizing college students to staff emergency apparatus in exchange for room and board.

Regarding the cost savings associated with the use of student firefighters, Fried (1991) wrote: “the department increases its available manpower by an enormous number for less than the salary of two paid personnel, who would only be in the station some 80 combined hours each week” (p. 90).

However, because college student live-in programs are not widely used as a method to staff emergency apparatus, little published material specific to such programs was found. Further, no national standards were found which formally addressed student live-in

programs. In fact, Lee (1996) made the observation from his research that “each department which has implemented a student firefighter program has tailored that program to fit department needs and limitations” (p. 19). In essence, there appears to be no step-by-step process available to follow as a guideline for implementing a student live-in program.

Four Executive Fire Officer Applied Research Projects relevant to college students being used to staff emergency fire and ambulance vehicles were reviewed. In 1991, Hoyle wrote extensively of his ideas of expanding the Amherst, Ma, Fire Department’s student live-in program. It would appear by Hoyle’s project title: *Cost Effective Staffing: Utilizing College Students In Fire Departments*, that a quantifiable comparison of college students verse paid full-time staff could be mirrored. However, no quantifiable costs for expanding their student live-in program were identified in his proposal. He wrote: “If the town opted to add a dormitory wing to the new station and house more students here instead of Call firefighters, the concept would work well” (Appendix). No cost figures associated with the dormitory wing addition or program operation costs for the student live-ins were identified in his project.

In 1993, Blankenship of the Auburn, AL Fire Department also wrote of his department’s experience using college students as firefighters. His work focused on descriptive research showing how their student program operated. Lee (1996) also wrote of the utilization of college students for fire department staffing, but the program he suggested did not allow students to live in the station or receive room and board as compensation. Rather, students who participated in the program Lee suggested would receive some undetermined college credit for work experience in exchange for participation in the

program. Finally, Joos (1997) also wrote of using college students for staffing emergency vehicles. As with Lee, Joos' proposal centered on giving college credit to students who participated in the program but he proposed no live-in arrangements for students were proposed.

While each of these four research projects provided understanding into the many facets of using college students to cover emergency fire and ambulance equipment, they were limited in scope as it related to the research questions posed in this paper. As such, research was employed using a survey instrument to query fire departments that currently use college students to staff emergency vehicles in exchange for housing to learn how each program operated.

The responses to the survey were wide and varied, indicating large differences in the size, scope, and functionality of each student program. This diversity proved valuable in considering options for the operational features of Dover's proposed program. As a result of the responses made to the survey, a number of well established student live-in programs were found within driving distance from Dover, including ones in Amherst, MA and Gorham, ME.

The Amherst, MA, Fire Department, located about 120 miles from Dover, has had a successful student live-in program in operation, in one form or another, since 1953 (Hoyle, 1991). Traveling to Amherst, MA, on April 15, 1999, along with the union presidents of both the Firefighters' Local and the Fire Officers' Local, allowed for a six-hour review of their student program. Union Officials were invited because of Hoyle's (1991) observations. He wrote:

For departments that presently have no student firefighter involvement, but wish to initiate such a service, be sure the department is prepared beforehand. An established culture will not respond kindly to an influx of collegiates unless it is involved from the beginning. Feelings of fear suspicion and jealousy will dominate. (p. 11)

An interview was conducted with a representative from the administration, Assistant Chief Patrick Brock, a 22-year veteran of the department and former Amherst Fire Department student live-in. Interviews were also conducted with several of the current student firefighters, including Captain David Clooney, a University of Massachusetts student, and the senior officer in the student live-in program. Visits to the two fire stations provided valuable insight into the role of the students in the program. An added benefit was that of actually viewing the living conditions of the students housed in the fire station. The visit also provided insight into the town of Amherst, MA, itself. It was noted that Amherst had many similarities to the City of Dover. Such similarities included fire department operating budget amounts, paid staffing levels, level of services provided, number of fire stations, community demographics, typical building construction features, area of fire protection coverage and mutual aid access.

A second site visit was made to Gorham, ME, located about 50 miles northeast of Dover, on April 22, 1999. Again, both union presidents were invited and made the trip. The Gorham Fire Department currently uses college students as Firefighters and Emergency Medical Technicians. The Gorham program is in its eleventh year of operation. Interviews, lasting about two hours, were conducted with Fire Chief Robert LeFever and Captain Michael Kucsma, a former student live-in and now a full-time captain with the department. As with the visit to Amherst, MA, the visit to Gorham provided insight into the

operation of their student live-in program and provided for a tour of the living quarters for the students. Chief LeFever and Captain Kucsma, both members of the department since the inception of the student live-in program, gave a history of the lessons learned in starting their student program. This information proved valuable in evaluating choices for starting the Dover program.

The University of New Hampshire operates a program where students serve as dormitory supervisors in exchange for free room and board. The program is called the Resident Assistant (RA) program and it has many similarities in purpose, scope, and benefits as the proposed student live-in program. On April 2, 1999, an interview was conducted with a University of New Hampshire (UNH) student, Andrea Dixon, currently serving as a Resident Assistant. The purpose of the interview was to benchmark a similar program with the proposed student live-in program. Interested readers will find that the University has established a Web page for recruitment information regarding their RA program ("Residential Life," 1999).

The interview with Ms. Dixon provided understanding into her duties and responsibilities, as well as outlined the benefits that she received. The Dover Fire & Rescue Service currently has no facilities to house college students an addition is planned to house the students. As such, information regarding the typical living quarters and services offered to an RA was helpful as a yardstick in determining standards for living quarters and services for the proposed living quarters addition to the South End Fire Station.

When the student live-in program was first introduced, some five years ago, \$260,000 was budgeted for the addition to the South End. This figure was derived from an

architectural firm's interest in bidding on the project. Neither the scope of the work for the addition nor the specific operating features of the live-in program was determined at that time. Therefore, the \$260,000 figure budget figure for the addition was a ballpark estimate. To accurately evaluate the cost-effectiveness of the student live-in program, a more accurate figure for construction costs needed to be calculated. However, before construction costs could be estimated, a space needs assessment needed to be accomplished. DeChiara (1990) provided guidance on the options of student bedroom occupancy, room size, and bathroom facilities.

Regarding the student room, DeChiara (1990) explained:

The student room is the smallest element and the basic element in the housing facility. It is the core environment of the student who spends many of his waking hours here (undergraduate girls, 8 hr; boys, 6hr). In this space the student studies, sleeps, dresses, and socializes. He stores all of his clothes, books, and personal possessions here.... In a very real sense, it is here that his identity... is established, since it is the only space which he himself can control in any way. (p. 243)

Because students will likely spend a significant amount of time in their room, careful consideration of student room size and occupancy number was considered. Regarding the student room, DeChiara (1990) made these observations contrasting the number of occupants who should live in each room:

The student's pattern of activity is rarely consistent; he may sleep at any time of day or night. Two occupants of a room very rarely follow the same schedule. Exams and social activities modify their patterns even more extensively. It is the varying patterns that present conflicts in multi-occupancy rooms. (p. 246)

He went on to offer the opinion that “single-occupancy rooms would be better” (p. 246).

Giving his reasons for such a suggestion, DeChiara noted that “the single room provides controlled privacy for its occupants with respect to all other students” (p. 246).

As for the recommended size of each single student room, DeChiara (1990) offered three options: “minimum – 90 square feet, optimum – 110 square feet, and generous – 120 square feet” (p. 243). However, he then went on to add “the single room is unlikely to be really humanely satisfactory if it is less than 120 square feet” (p. 246).

DeChiara (1990) was also consulted regarding the bathroom facilities for the addition. There are two options available for bathroom facilities, the gang facility, and the bathroom located within each room. Citing such issues as privacy, male – female cohabitation, and long term cost savings, DeChiara suggested the option of individual bathrooms within each student room. His examination of the options found that gang type facilities are inflexible and “although initially it is less expensive to build gang facilities.... the reduction in maintenance requirements will more than amortize the increased first cost of smaller bath facilities” (p. 248). DeChiara offered no suggested size for a bathroom facility, however, de Silva (1995) suggested 47 square feet per bathroom facility.

Additional rooms to be considered as inclusive in the addition of the South End Fire Station were the student’s dining room, kitchen, training room and lounge area. As such, de Silva (1995) was consulted for guidance for room sizes for these proposed rooms. A total of 20 square feet per person was suggested for the dining room and a kitchen “as large as 16 x 32 feet” was cited (p. 492). The training room or classroom should be “planned at 16 sq. ft. per person” (p. 491) and the lounge or television room area should be “about 12 x 20” (p. 491). An additional 108 square feet was suggested for the mechanical

room for utilities and “a minimum of 6 x 10 feet for storage or 10 x 10 feet if possible” (p. 491).

Construction costs for the addition to the South End Fire Station needed to be calculated from the information published by DeChiara (1990) and de Silva (1995). Two agencies, the International Conference of Building Officials (ICBO) (“Building Valuation Data,” 1999) and R. S. Means Company (*Building Design & Construction*, 1999), publish building construction cost data. In both cases, regional modifiers were used to reflect construction cost differences across the country. The ICBO data “includes architectural, structural, electrical, plumbing and mechanical work, except ... air conditioning and sprinkler systems.”

Building cost computations by R. S. Means Company were for the basic building and did not include “site work, land costs, development costs, specialty finishes or equipment” (*Building Design & Construction*, 1999, p. 29). A word of caution was expressed by de Silva (1995) regarding building construction cost budgeting. He wrote: “A prudent budget allows for the unexpected by providing a contingency fund. This should start out at the early planning stages of the project at 15 percent” (p. 494).

Once the construction costs were determined, an interview was conducted with Jeff Harrington (personal communication, April 28, 1999). Mr. Harrington is the Finance Director for the City of Dover. The purpose of this interview was to explore various financing options and payment plans for the funds to build the addition to the South End Fire Station and to purchase the necessary furniture, appliances, and equipment.

Another issue that needed to be addressed was the training and certification requirements for the students. Because it was the intent of the student live-in program to

require students to staff emergency vehicles and operate at the scene of an emergency, minimum training and certification standards needed to be set. State and local requirements were researched to determine training and certification levels.

The National Fire Protection Standard 1500, 1997 Edition, *Standard on Fire Department Occupational Safety and Health* (NFPA 1500), was consulted. The purpose of NFPA 1500 is to “specify the minimum requirements for an occupational safety and health program for a fire department and to specify safety guidelines for those members involved in rescue, fire suppression, emergency medical services, hazardous materials operations, special operations, and related activities” (1997, Section 1-2.1). NFPA 1500 is not adopted by City or State Code, consequently it is only a recommended standard and not enforceable as law. Yet, Hoyle (1991) wrote that NFPA 1500 is being successfully introduced in courts of law as prima facie evidence in staffing issues.

The City of Dover Fire & Rescue Standard Operation Procedure, ADM-17, *Occupational Safety and Health Program*, references NFPA 1500 whereas it states: “The training and education provided to members shall address all of the applicable provisions of NFPA 1500” (1995, p. 17). NFPA 1500, states: “All members who engage in structural fire fighting shall at least meet the requirements of Fire Fighter I as specified in NFPA 1001, *Standard on Fire Fighter Professional Qualifications*” (1997, Section 3-2.1). It was the intent of the students student live-in program to require student firefighters to engage in structural fire fighting.

NFPA 1500 further requires that “all members who engage in emergency medical services shall meet the requirements of the authority having jurisdiction” (1997, Section 3-2.7). Also, those “who respond to incidents involving the release or potential release of

hazardous substances shall meet at least the requirements for First Responder Operations Level as specified in NFPA 472, *Standard for Professional Competence of Responders to Hazardous Materials Incidents*” (1997, Section 3-2.9). It was the intent to require student firefighters to engage in emergency medical services and to respond to hazardous material incidents.

State of New Hampshire, Revised Statutes Annotated (RSA) was consulted to determine State of New Hampshire training and certification level requirements for firefighters and Emergency Medical Technicians. New Hampshire RSA Section 21-P:12-a, Section II, (c), requires the Director of Fire Standards and Training to “establish, maintain, approve, and certify programs, courses, institutions, and facilities for study for all fire service personnel and recruits according to accepted curricula” (1999).

As such, the Director of Fire Standards and Training has published the *Code of Administrative Rules, Fire Standards and Training* (1998). Section Fir 701.02 of the *Code of Administrative Rules* requires that full-time career firefighters be certified as Firefighter I, as specified in NFPA 1001, *Standard on Fire Fighter Professional Qualifications*. Further, Section Fir 701.3 requires that full-time career firefighters be certified at First Responder Operations Level, as specified in NFPA 472, *Standard for Professional Competence of Responders to Hazardous Materials Incidents*. Both certifications must be obtained “within one year of original appointment to a department” (“Code of Administrative,” 1999).

The *Code of Administrative Rules* (1999), Section Fir 101.17, provided this definition of a full-time career employee:

“Full-time career fire personnel means any fire service personnel employed as a member of a fire department... providing fire services to the general public, as their principle source of income or who perform fire, rescue, or related duties... and who is paid \$15,000 or more in any given consecutive 12-month period; or who has been assigned to work on a permanent basis, the number of hours per week established by the hiring authority as a full work week.

Individuals who perform fire, rescue, or related duties and do not meet the definition of full-time career fire personnel, such as the students in a live-in program, are not required to meet any state training certification standard. Such individuals would be trained to “local training requirements” (R. Mason, personal communication, April 13, 1999).

Certification training requirements for Firefighter I is a minimum of 184 hours of classroom and practical education. Individuals must also pass a written examination and practical evaluation. Certification training requirements for First Responder Operations Level is a minimum of 24 hours of classroom and practical education. Again, individuals must pass both written examination and practical evaluation (P. Plummer, personal communication, April 14, 1999).

To determine minimum training and certification requirements for emergency medical care, New Hampshire RSA 151-B:18 (1999) was consulted. RSA 151-B:18, gives authority to the Commissioner of Emergency Medical Services to establish training and certification requirements for emergency medical care providers. Further, RSA 151-B:9 (1999) defines an Emergency Medical Care Provider as:

... a paid or volunteer member of a public or private emergency medical services unit in this state, or as a paid or volunteer member of any police or fire department who, as a

condition of employment, may be expected to routinely provide emergency medical services in the line of duty.

Individuals, paid or volunteer, cannot provide emergency medical care services within the state without being licensed by the commissioner (RSA 151-B:8, 1999). To qualify for licensure in the state, the *Code of Administrative Rules, Health & Human Services*, Section He-P 1202.06, requires that individuals be certified as an EMT – basic, as certified by the National Registry of Emergency Medical Technicians (1998). Training and certification as an EMT – basic is a minimum of 120 hours of classroom and practical education. Individuals must also pass a written examination and practical evaluation (P. Plummer, personal communication, April 14, 1999).

Finally, The Charter for the City of Dover (1984) was reviewed. Section C7-7. Public safety employees states:

All public safety employees shall be appointed and promoted consistent with the provisions of C7-1 and shall at all times be employees of the city. Public safety employees shall be construed to mean those employees that provide police and fire protection. (p. C27)

Section C7-1, as referenced in C7-7 above, requires that appointments “to all position in the service to the city shall be made solely on the basis of... the procedures set forth in the Merit Plan” (“The Charter,” 1984, p. C26). The Merit Plan makes no mention of student firefighters or EMT’s and contains no position classification for such, and therefore, under the current City Charter, no provision are made to allow for student firefighter or EMT’s (“Merit Plan,” 1996).

PROCEDURES

A review of pertinent literature relating to college students being used by fire departments to staff emergency vehicles in exchange for room and board was the first step in this study. Reviewing four Executive Fire Officer Applied Research Projects at the National Fire Academy's Learning Resource Library provided limited information on the quantitative comparison of college students versus paid full-time staff. Few published articles relevant to this study were found in fire service trade journals. Internet search engines were also used and turned up a few departments utilizing a college student live-in program. This information was used to establish point-of-contact information for further follow-up using a survey instrument.

To find additional fire departments using a college student live-in program, letters were written and mailed on October 27, 1998, to each of the 50 state fire training directors throughout the country (see Appendix A). The purpose of the letter to the state training directors was to request point-of-contact information for any known college student live-in programs in their state. Contacting Richard Mason, Fire Training Director for the State of New Hampshire (personal communication, October 23, 1998), he was able to provide the name and address of all state training directors in the United States (see Appendix B). Later, it was found that the United States Fire Administration maintains a current list of all state-level fire service positions, including state training directors, on its web site (www.usfa.fema.gov/pocs/).

While awaiting responses from the state training directors, a survey instrument was developed to query information regarding active student live-in programs (see Appendix C). It was expected that the answers to the survey would provide evaluative information,

giving a broad overview of each department's program. Information sought from the survey instrument included such things as the number of students used in the program, how they were used, the number of hours they are required to work each week, their certification and training level requirements, and the compensation or benefits received by the student for participating in the program.

Additional information was also requested in the cover letter that was mailed with the survey instrument (see Appendix D). Such requested information included copies of Standard Operating Procedures or Guidelines, sample student contracts, bargaining agreement language and student evaluation criteria. This additional information was requested to learn more about the department's use of college students and the student's role within the department.

The request for bargaining agreement language was included in the event the city decided to proceed with the student live-in program. While exploring the student live-in program it became apparent that union officials within the department were somewhat apprehensive about the program. This was to be expected since Hoyle noted that "the inception of a student firefighter program can be viewed by unions as a ploy to reduce their numbers, effectiveness and overall costs associated with labor-intensive operation such as around the clock staffing" (1991, p. 10).

Although this may be the case, David McFadden, Training Coordinator with the Fox Valley Technical College in Neenah, WI, suggested that by "obtaining approved contract language" (Lee, 1996, p. 36), fire departments could overcome the hurdle of implementing a student live-in program where career personnel may offer resistance. By being open about the research being conducted regarding the student live-in program and providing

union officials with information as to how the program would operate, it was hoped to allay apprehension amongst the full-time personnel regarding the proposed role of the students in the organization.

A follow-up letter to those state training directors who had not responded to the survey was mailed on November 12, 1998. In all, of the 50 state training directors contacted, 42 of the 50 states returned information regarding the existence of student live-in programs within their state. An E-mail address was provided in the letter of request for information for respondents to make it easier to respond and to facilitate quicker turn-around time. Of the 42 directors who responded, 18 used E-mail to respond.

From the information gathered from the literature review and the state directors, the Student Live-in Survey was mailed on January 8, 1999, to 50 agencies across the country (see Appendix E). To facilitate prompt response to the survey instrument, a self-addressed, stamped envelope was included for returning the survey. Agencies that had not responded in the requested time frame were sent a follow-up letter and survey on February 12, 1999. In all, 45 agencies responded to the survey and the results of the survey were tabulated into *Microsoft[®] Access97 for Windows* (see Appendix F). Use of the spreadsheet contributed to more efficient comparisons and evaluations of the responses.

More than half of the responding agencies that administer a college student live-in program included with the survey significant written material about the operation of their program. The additional correspondence proved valuable in regards to methods and options for utilizing college students. The supplemental information included such subjects as recruitment processes, interview processes, work schedules, living conditions, training

requirements, compensation packages, performance standards, and student evaluation criteria.

Once the evaluation of the survey instruments and supporting information was completed, a student live-in program tailored to meet the needs of the department was formulated. From this, the *City of Dover Fire & Rescue Service, Student Live-in Proposal* was developed (see Appendix G). This proposal was divided into two sections, the Operation Guidelines, and the Benefit Guidelines. The Operation Guidelines outlined the number of students who could be in the program, the scope of work required by each student, training and certification requirements, the physical qualification of a student, and the schedule for the number of hours per week each student would be required to work. The Benefit Guidelines outlined the station facility rooming requirements for the addition to the South End Fire Station, the clothing and equipment issued by the department and the training programs offered by the department.

Once the student live-in program proposal was developed, associated costs could be determined. It was the proposed outcome of the student live-in program to increase staffing on fire or medical equipment by one person per shift. To provide a true comparative analysis of costs and benefits received by the city, it was assumed that anytime a student was unavailable to cover emergency apparatus because of an official University break, coverage would be provided by full-time personnel using overtime.

The following steps were taken to develop two, two-year budgets. One two-year budget was developed for the student live-in program (see Appendix H) and a second two-year budget developed to reflect the hiring four additional full-time employees (see Appendix I).

Step 1

A space needs assessment was completed using the information obtained from the literature review. The space needs were based on eight students living at the South End Fire Station. Included in the assessment results for the addition were a single bedroom and bath for each student (DeChiara, 1990), a kitchen, dayroom, laundry, training room and storage room (de Silva, 1995). It was anticipated that full-time personnel would dine in the same room as the students because the current dining area and kitchen would be too small to accommodate any additional people. Therefore when calculating the square foot requirements for the dining area, the number of persons per square feet included the eight students and the four full-time personnel.

Additionally, when calculating the square footage for the training room, sufficient space was calculated for the capacity of 8 students, 9 full-time suppression personnel, 2 staff officers, and 1 instructor, for a total occupancy of 20 persons. This was because there are currently no facilities available at the South End Station to conduct classroom instruction. Finally, an estimated 150 square feet of space was added for a corridor/hallway.

Step 2

Once the total square feet of space were determined, building costs were then calculated. Using the Building Valuation Data from the International Conference of Building Officials (ICBO) estimated construction costs were calculated ("Building Valuation Data," 1999). The ICBO provided a cost figure of \$103.80 per square foot for a Type II constructed fire station. According to NFPA 220, *Standard on Types of Construction*, 1995 Edition, Type II construction is "construction in which the structural members, including walls, columns, beams, girders, trusses, arches, floors, and roofs, are of approved noncombustible or limited-combustible materials" (Section 3-2). The existing

construction of the South End Fire Station is Type II construction. Added to the \$103.80 construction cost was the required \$3.70 per square feet for heating, ventilation and air conditioning and \$2.30 per square foot for the automatic fire sprinkler system. This indicated a construction cost of \$109.80, prior to making the necessary regional state modifier.

The ICBO offers a regional modifier of 0.82 for New Hampshire ("Building Valuation Data," 1999). As such, the construction cost of \$109.80 per square foot was multiplied by the modifier of 0.82 to reach the construction cost for New Hampshire. Cost comparisons by R. S. Means Company (*Building Design & Construction*, 1999) indicated that construction costs in the metropolitan Boston area for a similar building would be 103.29 per square foot. Because ICBO offers a state specific modifier, rather than a metropolitan area modifier, its construction cost evaluation method was preferred and used.

As noted in the literature review, construction costs estimated by the ICBO do not include site evaluation or preparation cost. Consequently, site evaluation and preparation costs needed to be estimated. To alleviate overcrowding, the City of Dover constructed an additional apparatus bay on the South End Fire Station in 1998. The footprint of the apparatus bay addition was about 2,700 square feet, close to the footprint size for the proposed student living space addition. The actual site evaluation and preparation costs for the apparatus bay addition was \$24,600. As such, this figure was used for the estimated site evaluation and preparation costs for the student addition.

Lastly, a 15% contingency fund was calculated as recommended by de Silva (1995). Adding together the cost of construction, the site evaluation and preparation costs, and the 15% contingency fund, a total cost for the living space addition was calculated.

Step 3

Once the living space addition costs were determined, the next step was to determine the furniture, appliance, and equipment requirements (see Appendix J). It was anticipated that each bedroom be furnished with a single bed, nightstand, nightstand light, dresser or chest of drawers, desk, chair and lamp. Furnishings for the television room included two couches, eight easy chairs, four end tables, two coffee tables, a 27-inch television, and a television stand. The dining area was to have two dining room tables and 12 dining room chairs.

The training room was to be furnished with six folding-type tables, 18 office chairs, a monitor projection unit, 25-inch television, VCR, and television stand. Appliances for the kitchen were to include three, 28-cubic foot refrigerator/freezers, a commercial-type cooking range, an oven, dishwasher, microwave, toaster oven, and blender. A compliment of pots, pans, dish sets, cooking and eating utensils were budgeted. Finally, one heavy-duty washing machine and dryer were budgeted for students to do their laundry.

Prices for the furniture, appliances, and equipment were found using local furniture or appliance retailers, office furniture catalogs, and department stores. Once the pricing of the contents of the addition were calculated, they were added to the costs of construction, site evaluation and preparation and the contingency fund. This figure represented the total amount of money necessary for the building and contents of the addition to the South End Fire Station.

Step 4

An interview with the city's Finance Director (J. Harrington, personal communication, April 28, 1999) provided insight into the preferred funding method for the addition and contents. In discussing the various options, it was Mr. Harrington's opinion that the preferred method of funding the addition and contents would be to bond the total cost over a 15-year period, with a lump sum payment annually. Further, Mr. Harrington estimated that the city would be required to pay a 5% rate on the money borrowed. Using *Microsoft® Excel97*, a spreadsheet was developed to project the annual amortization costs for the addition and contents.

Step 5

Using the operating budget format used by the city, a separate operating budget was developed for FY2001 and FY2002, forecasting the expenses associated with the student live-in program.

Costs included in these budgets, when applicable, were those for recruitment, entrance testing, certification training, uniforms, and protective equipment. Also included were worker's compensation insurance costs, office supplies, operating supplies and utilities. Electricity and heating costs were based on the current operating budget for utilities for the South End Station, divided by one-third because the proposed addition will increase the size of the existing building by approximately one-third. Water and sewer cost were established by dividing the current budget appropriation for these accounts for the South End Station by four, the current number of employees assigned to the South End Station. This figure provided a single person cost for water, sewer and supplies and was then

multiplied by eight, the number of student live-ins, to provide an anticipated cost for these services.

Added to these budgets were also the costs of overtime and retirement to pay full-time personnel when students were on school breaks. This was necessary to provide an equal evaluation of costs associated with around the clock staffing, the same as if four full-time personnel were hired. The hours of student availability were calculated using the 1999-2000 Academic Calendar for UNH ("Academic Calendar," 1999). This calendar indicated that school would be in session from August 30, 1999 – December 18, 1999, a total of 111 days, and from January 18, 2000 – May 20, 2000, a total of 121 days.

Therefore, the total number of days that students would be available for coverage was 232 days. Subtracting 232 days from 365 days indicated that existing full-time personnel needed to work over-time for 133 days or 3,192 hours. The same number of days was estimated for both years. An average hourly overtime rate for each year was determined using current payroll records and the firefighter's bargaining agreement document, for calculating pay raises ("Collective Bargaining Agreement," 1999).

Step 6

The annual bonded debt payment established in Step 5, was included in the proposed FY2001 and FY2002 Operating Budget and the costs for the student program were establish.

Step 7

Two separate operating budgets, which reflected the cost of hiring four additional full-time employees, were then developed for the same two-year period, FY2001 and FY2002. Salary and benefit costs developed for this budget were determined using the Collective

Bargaining Agreement, City of Dover New Hampshire and Dover Professional Firefighters Association, Local 1323 – IAFF. No overtime costs were associated with the FY2001 budget because new employees are “not entitled to vacation or sick leave during the first year of employment” (“Collective Bargaining Agreement,” 1999, p. 9).

Costs for such things as operating supplies, water, and sewer were calculated using the department’s current budget figure for the South End Fire Station and dividing that figure by four. This figure provided a single person cost for operating supplies, water, and sewer to provide the anticipated increased cost for these supplies and services.

Step 8

The FY2001 and FY2002 operating budgets for the student program were added together to establish a two-year cost for the program. The same was done for the operating budgets for hiring the four personnel and a comparison was then made between the two-year budgets. From this comparison of the two options, the more cost-effective method for increased staffing was determined. Because of this determination, a recommended course of action was developed.

LIMITATIONS

Interested readers will note that no attempt was made to determine the feasibility of recruiting a sufficient number of college students to participate in the program. It was assumed that a full staff of eight college students would be enrolled in the program at all times during the school year. Additionally, it was assumed that all eight students enrolled in the program the first year would return for the second year.

Further, no attempt was made to compare the quality of service provided by college student enrolled in the live-in program with that of a full-time career Firefighter/EMT. Nor

was there an attempt to evaluate the effect of student firefighters not being qualified to provide emergency medical care during their first five months of enrollment in the program.

Finally, when forecasting future budget costs, every attempt was made to include actual anticipated contractual costs. In those cases where this was not possible, a 2 ½% inflation rate was anticipated across the board.

RESULTS

The following results were documented based on the answers to the two research questions.

1. What requirements must be met to start and maintain a college student live-in program for the City of Dover? Blankenship (1993) noted that “the use of college students in the fire service is not a new idea but one that has been utilized for many years in different fire departments across the United States” (p. 7). Yet, no published material could be found which outlined specific requirements for starting or maintaining a college student live-in program. Lee (1996) perceived that there are in fact many different departments using college students to staff emergency fire and medical equipment, and that each program is unique in its requirements and manner of compensation.

Given that there was no published step-by-step guideline to follow for initiating a student live-in program, one would need to be developed specifically to meet the needs of the Dover Fire & Rescue Service. To this end, information was required which would offer insight into the various alternatives in use today by fire departments with student live-in programs. The letter of introduction and survey instrument mailed to departments currently using college students provided the necessary insight to develop the requirements for the proposed Dover program.

The following categories reflected various differences in student programs across the country.

Room and Board

The goal of the City of Dover was to offer room and board to students in exchange for staffing emergency vehicles. This concept is similar to the program identified in some 29 other fire departments across the country. Typical is the program offered at the Moyers Corners Fire Department, Inc., located in Baldwinsville, NY. There, college students attending the Onondaga Community College, Fire Protection Technology Program are eligible to reside in one of the nine rooms for which they have accommodations. However, not all departments utilizing college students provide housing for them. The Richmond, KY, Fire Department utilizes college students to staff fire apparatus, however no live-in facilities are provided. The Amherst, MA Fire Department offers live-in accommodations to 8 students of the 13 students in the program. The other students must pay to live in the college dorm.

Compensation

Options for monetary compensation to student participants varied with each program. Generally, however, compensation fell into one of four categories: no payment, hourly payment, lump sum or college credit. The Frenchtown, MT, Fire Department had six college live-in students and the students received no monetary compensation for the hours they work. The 13 students participating in the UC Davis Fire Department, CA received an hourly salary of \$5.75 per hour for the four shifts a month worked.

The range of pay for a student firefighter in the University of Alaska – Fairbanks Fire Department was \$5.79 – \$11.00 per hour worked. Students were paid 16.25 hours for

each 24-hour shift worked. One department, the Gilmanton, NH, Fire Department provided monetary compensation for hours works, but also charged each student \$880 per half-year for rent to live in the fire station. The Oregon City Fire Department paid a lump sum payment of \$600 per term for each of the three students who lived in their station.

It was found that most departments offering a student live-in program have worked out details with their local college(s) to allow the college to provide credits for the work experience provided through the student program. One such department is the Grand Chute Fire Department in Appleton, WI (M. Heling, personal communication, February 19, 1999). There, students who participate in the live-in program receive two college credits for their work with the fire department.

Training and Certification Requirements

All of the respondents indicated that students who are used for staffing emergency equipment must meet either state or local training certification requirements and most departments required some level of emergency medical certification as well. The range of certification varied, as did the certifying agency. The Pleasant Prairie, WI Fire Department, required live-in students to successfully pass the Wisconsin State Firefighter I course within three semesters of acceptance into their program (P. Guilbert, personal communication, February 11, 1999). Students must also be a Nationally Registered Emergency Medical Technician or enrolled in the first available class.

The Amherst, MA, Fire Department provided in-house training for students. Students who wish to participate in the program must attend a one-week training program called "Wonder Week." During the weeklong training period, senior students, under the supervision of full-time shift captains, instructed new students in subjects selected by the

department. The students themselves provided the on-going proficiency training to other students. No state firefighter certification was necessary for student firefighters.

The Windham, ME Fire Department required students to be certified by the State of Maine at Firefighter I level and they must be state certified Emergency Medical Technicians (EMT). The Yuba City, CA Fire Department, working with the Yuba Community College, provided both State of California Firefighter Certification Levels I and II for the students, as part of the Associates Degree program. However, students must be certified to Firefighter Level I prior to entering the student live-in program. Yuba City was also one of a few departments that required state certification as an EMT- Basic and also Hazardous Materials – Operations Level certification.

Work Schedule

Work schedules, as with other facets of each student live-in program, varied with each organization. The lowest hourly requirement was found at the Fitchburg, WI Fire Department. There, the department required each of their six students to work 12 hours per week in exchange for housing. The highest weekly work requirement was found at the Madison, WI, Fire Department, there the three live-in students were scheduled to work 56 hours per week. Typically, though, it was found that students were required to work in the range of 20 – 24 hours per week. This was the case with the Wrightsville Beach, NC Fire Department, which requires their five students to work 22 hours per week.

Coverage requirements by students during sanctioned school breaks was found to be split 50 – 50. Half of the departments required students to fulfill their work schedule, even during school break, whereas half did not.

Gender Limitations

Of the 29 respondents to the survey who offer student housing, only one program limited its program to males. The South Portland, ME, Fire Department did not open their program to females. The South Portland program had two students participating in their program and they shared their sleeping quarters.

Other Benefits

As expected, all respondents indicated that uniforms and protective clothing were provided to each student. With the exception of the Shorewood, WI, and Yuba City Fire Departments, no department offered meals or an allowance to purchase food. However, all respondents provided facilities for food preparation.

The findings from the surveys proved valuable in weighing the various options available to incorporate into Dover's program. However, when it came to training and certification requirements for the students, department culture and department Standard Operating Procedures dictated expectations. It has been the standard of the Dover Fire & Rescue Service to require each individual involved in fire suppression activities to meet the minimum requirement of certification as a NH Firefighter I and Hazardous Materials First Responder Operations Level. This was reflected in the department's inclusion of the minimum training requirements of NFPA 1500 (1997) into its Standard Operating Procedure ("*Occupational Safety*," 1995) for all department members. It is also required by the State of New Hampshire that those involved in providing emergency medical care be a Nationally Registered Emergency Medical Technician. As such, these were established as the minimum certification level acceptable for someone providing fire or medical services within the community.

As for the details involving the space needs for the addition to the South End, the information provided by both DeChiara (1990) and de Silva (1995) proved significant. The results of their recommendations for space for the addition are captured in Table 1.

Table 1

Space Needs Assessment Results

| Description | Square Footage Requirement | Total Square Footage |
|-----------------|----------------------------|----------------------|
| Bedroom | 120 per student | 960 |
| Bathroom | 47 per bedroom | 376 |
| Dining | 20 per person | 240 |
| Kitchen | 16 feet x 32 feet | 512 |
| Training Room | 16 per person | 320 |
| Television Room | 12 feet x 20 feet | 240 |
| Utility Room | 8 feet x 10 feet | 108 |
| Storage | 10 feet x 10 feet | 100 |
| Corridor/Open | 5 feet x 30 feet | 150 |

Note. Total space needed was 3,006 square feet.

From the options considered from the survey instruments, the training and firefighter certification requirements of the City of Dover and NFPA 1500 (1997), the emergency medical training certification requirements of the State of New Hampshire and the space needs assessment, the *Dover Fire & Rescue Service, Student Live-in Proposal* was developed. This document provided the framework for establishing the requirements for initiating and maintaining Dover's student live-in program.

2. In meeting these requirements, what was the cost-effectiveness of using college students for staffing rather than the traditional hiring of full-time employees? Once the framework of the program was developed, the specifics costs associated with the program could be developed. The most significant cost associated with initiating the student live-in program was building living quarters for the students, as no facilities were available. However, once the space needs were outlined and the square footage requirements established, the estimated cost for construction could be developed.

The International Conference of Building Officials (ICBO) provided building construction costs based on square feet ("Building Valuation Data," 1999). In this case, the total square foot requirement for the addition was determined to be 3,006 square feet. The cost of building a Type II construction fire station was \$103.80 per square feet. Additional costs outlined by ICBO included \$3.70 per square foot for heating, ventilation and air conditioning, and \$2.30 per square feet to extend the buildings sprinkler system. This brought the cost per square feet to \$109.80. This per square foot cost was then modified to reflect the actual building costs in New Hampshire. A regional modifier, 0.82, was established by ICBO for New Hampshire. When the regional modifier of 0.82 was multiplied by the \$109.80 per square foot cost, the final estimated square foot cost for the station proved to be \$90.04 per square foot.

Multiplying the total square foot requirement of 3,006, times the \$90.04 per square foot cost provided a construction cost estimate of \$270,660. However, this price did not include site evaluation or preparation work, this was an additional \$24,600. This brought the total cost to \$295,260. Because this price is an approximate cost, de Silva (1995) suggested establishing a contingency fund of 15% of the total construction costs to meet

any unexpected shortfalls. This added another \$44,289 to the project cost, now totaling \$339,549.

The cost of building the addition did not include contents and therefore the contents needed to be identified and priced. The detailed results of the necessary furniture, appliances, and equipment for the addition were then calculated. The total costs identified for furniture, appliances, and equipment came to \$38,205. This figure, added to the \$339,549, indicated that \$377,754 was needed to build the addition and equip it with the necessary contents.

Once this cost was established, the amount of money the city would need to borrow could be entered into an amortization formula and the annual cost of borrowing this sum of money could be determined. Using *Microsoft® Excel 97*, a spreadsheet was used to project the annual amortization costs for the addition and contents. Inputting the forecasted annual percentage rate of 5%, and the number of years of the bond, 15 years, into the amortization calculator, a bond payment of \$36,393.68 per year was established. The results of the amortization costs are found in Appendix K.

Using the *Dover Fire & Rescue Service, Student Live-in Proposal* as a guide, a two-year operating budget was developed for the student live-in program for FY2001 and FY2002. Using the established accounting system used by the City of Dover, including account numbers and summary statements, the sum of \$154,793 would be required to operate the program in the first year. The sum of \$133,454 would be required to operate the program in the second year. The two-year cost for the student live-in program was calculated at \$288,247.

Using the Collective Bargaining Agreement, City of Dover New Hampshire and Dover Professional Firefighters Association, Local 1323 – IAFF (“Collective Bargaining Agreement,” 1999), salaries and benefits were developed, along with other associated costs for hiring four full-time personnel. Again, using the established accounting system used by the City of Dover, the sum of \$188, 487 would be required to hire four additional full-time personnel in the first year. The sum of \$206,730 would be required to maintain the four additional personnel in the second year. The two-year cost of hiring four additional full-time personnel was calculated at \$395,217.

Subtracting the cost of the student program for two years, \$288,247, from the cost of four full-time personnel for the same two years, \$395,217, indicated an estimated cost saving in starting and maintaining the student live-in program at \$106,970 for the first two years.

DISCUSSION

The need for fire service leaders to evaluate, recommend, and implement cost-effective methods of providing services to the community has become increasingly more important. In order to make meaningful strides in maintaining or even reducing service costs, personnel related costs must be addressed, as they can make up better than 90% of a department’s budget (Brunacini, 1992). One such method of providing services to a community at a reduced cost is that of using college students as labor in exchange for room and board. This program is not a new idea as 29 departments across the country were identified as having a program in place.

The City of Dover, New Hampshire is a community that is continually seeking alternative methods of providing services at a reduced cost. Alternatives such as privatization,

municipalization, contract services, consolidation and reorganization have all been explored and implemented by city administrators over the past ten years. Therefore, when the Fire Chief introduced the student live-in program as a method of providing labor at a reduced cost, the City Council enthusiastically approved the funding for the addition to the fire station to house the students.

Although the funding for the addition was approved, the specifics for the operation of the program had never been explored. The purpose of this paper was to explore the specific operations of a student live-in program and to develop anticipated costs to compare with those costs associated with hiring full-time personnel. Unfortunately, there was little published material available to evaluate cost benefits. As such, survey instruments, supporting documentation and two separate site visits to departments using students were used as instruments for learning the particulars of starting and using students as firefighters and EMT's.

The survey instruments were particularly useful in comparing the many facets of the various student programs. Of the 45 departments that responded to the survey, only four departments use college students to staff emergency apparatus but do not provide housing for them. In effect, these departments allow students to serve as volunteers or call firefighters while they attend a local college. Certainly, the majority of those who responded to the survey, 29 departments, provided housing to the students.

The living arrangements for student live-ins were of particular importance. When being interviewed, Chief LeFever was asked what would be his primary focus if he had the opportunity to start a new student live-in program. Chief LeFever responded that "facilities were the most important" (personal communication, April 22, 1999). Since the addition to

the South End was not designed, a unique opportunity was presented to provide adequate facilities for the students. While visiting the Amherst, MA Fire Department, it was noted that two students shared a bedroom. The room was quite small, providing just enough space for two beds and a closet. At the Gorham, ME Fire Department, four students shared a single room, three males and one female, in an open bunkroom-like arrangement. Privacy was provided by a movable hospital curtain partition. Although the students didn't seem to mind, these living conditions didn't appear appropriate for individuals providing a valuable service to the community.

With this in mind, the interview with Ms. Andrea Dixon (personal communication, April 2, 1999), a Resident Assistant at UNH, provided good insight into the typical living conditions for a UNH student working as a RA. Ms. Dixon has a single bedroom and the size of the room is quite large, 18 feet by 24 feet, or 432 square feet. This is nearly four times the room size proposed by DeChiara (1990), and this paper, for each student. However, Ms. Dixon does not have a private bath or a television room on her floor. Providing the 120 square feet for the bedroom and a private bath, as recommended by DeChiara, seemed to be a good balance. Following the recommendation of DeChiara was also the advice of Mr. Philip Kendrick, PA, (personal communication, April 27, 1999). Mr. Kendrick, a licensed architect in the state of New Hampshire, felt that the recommendations of DeChiara were acceptable.

Other features of the South End addition were simple necessities. Students would need a place to store and cook food, eat, do laundry and recreate. An adequate facility to provide training for the students would also be necessary. This room could also be useful

for students for homework and studying. Because there is currently no space at the South End for classroom instruction, a training room was included in the addition.

Once the size of the building was determined, a more accurate cost for building the addition could be determined. In 1988, the fire department requested \$360,000, through the city's Capital Improvement Program (CIP), for a living space addition and an addition for an apparatus bay at the South End Station. The original purpose for the living space addition was to increase and modernize the living conditions for the full-time employees. In 1995, when no support was found among the City Council for the additions, the living space addition was separated from the apparatus bay addition. In 1998, the apparatus bay addition was built, at a cost of \$130,000.

When the two additions were divided, \$260,000 was established for the living space addition and \$100,000 for the bay addition. These figures were based on the \$360,000 request from 1988. As such, the cost associated with building the living space addition needed to be updated to reflect the proposed intended purpose.

After completing the space needs study, the cost of construction, using the ICBO's construction cost method (1999), was determined to be \$270,660. This figure was actually quite close to the amount of money appropriated for the addition through the CIP. Of course, once the site evaluation, preparation work and the 15% contingency fund recommended by de Silva (1995) was added in, the actual cost was estimated to be \$339,549.

Also unanticipated in the original CIP request of \$260,000 was the cost of office equipment, furniture, appliances and kitchen utensils. Typically, these items would not qualify for purchase under the debt-financed portion of the CIP. This is because

individually each item costs less than \$10,000 and wouldn't qualify for the CIP program. As such, they would be paid for through the department's annual operating budget. However, in interviewing the city's Finance Director (J. Harrington, personal communication, April 28, 1999), it was his opinion that these items would be included in the South End Station addition as a package and be included in the bond acquisition. This would be his recommendation to the City Manager if this project were to proceed.

Once the \$38,205 for furniture, appliances, and equipment was added in, the total project cost came to \$377,754. This was \$117,754 more than had been budgeted through the CIP and reflected an increase of \$11,344.69 per year in payments for the 15 years of the bond. Yet, the total annual bond payment cost for the addition would still be less than the annual cost of one full-time firefighter.

In addition to determining the cost for the addition to the South End Station, the planned use of the students also needed to be determined. Again, the survey instruments and site visits to Amherst, MA, and Gorham, ME, proved very useful in providing understanding into the many options available in implementing the student program.

Deciding on the number of hours each student would work was based on a number of factors. Hoyle wrote that any department considering the use of college students must remember that "students are students first, and firefighters second" (1991, p. 3). Brock (personal communication, April 15, 1999) and LeFever (personal communication, April 22, 1999) echoed this thought, as did others who responded to the survey. The focus on the student's education was reflected by many departments in that they required student live-ins to maintain a certain grade point average to stay in the program. In Madison, WI, students must "maintain a 3.0 grade point average in the core classes of the Fire

Protection Specialist program” (Bloom, personal communication, February 12, 1999) and in the Moyers Corners Fire Department, Inc., students must maintain a 2.5 grade point average (Tiner, personal communication, February 7, 1999).

Yet, the proposed purpose of implementing the student live-in program was to increase staffing at a reduced cost, therefore, a measure of balance was sought. Ms. Dixon, RA, receives room and board at UNH at a value of about \$4,500 per year (personal communication, April 2, 1999). For a student to make \$4,500 working a typical part-time job at \$6.00 - \$6.50 an hour, they would need to work about 20 – 23 hours per week over the 34 weeks that school was in session. Therefore, working a student an average of 21 hours per week seemed reasonable.

Scheduling each student to work an average of 21 hours per week would require that eight students be enrolled in the program. This would provide student coverage 24-hours a day while school was in session. This didn’t appear to be a problem because according to Fried (1991), student’s academic schedules are very flexible. He went on to indicate that “most students are not in class more than 17 hours each week” (p. 92). With a flexible schedule that required only 17 hours of classroom instruction, students could be scheduled during the day without difficulty.

The final decision to arrive at involved establishing the minimum training and certification level requirements for the students. The survey instruments indicated that all departments required their student firefighters to be either state or locally certified. What this actually meant was that a student could be required to meet all the requirements of NFPA 1001, *Standard on Fire Fighter Professional Qualification*, and be certified by a state training agency, such as is the case in the Saco, ME Fire Department. It could have

also meant that the training or certification could be something developed locally, by the individual fire department.

Such was the case with the Amherst, MA Fire Department. According to Brock (personal communication, April 15, 1999), the Amherst Fire Department provides one week of instruction to familiarize the students with the apparatus and equipment of the department and then requires that students be in the program for one year prior to responding to emergency calls. This standard of training for a student firefighter would also be acceptable in the State of New Hampshire. New Hampshire RSA Section 21-P:12-a, under the *Administrative Rules*, allows for individuals, who make less than \$15,000 a year from providing fire service to the general public, to be trained to a level decided upon by the locality. No certification training would be necessary.

This would not be fair to the student or to the full-time firefighter he or she would be working along side. Further, an untrained or uncertified firefighter would not provide the level of service the community has come to expect. Lastly, the organizational culture of the Dover Fire & Rescue Service would not support uncertified firefighters. As such, the minimum certification level required for a student would be New Hampshire Firefighter Level I. Because of the tremendous commitment the prospective student live-in would be required to make to become certified, 184 hours, it was decided that the city would provide the training free to each student and the student could live in the station during the training period. Within the Dover Fire & Rescue Service, many full-time employees are certified at this level. The same reasoning that applied to firefighter certification also applied to hazardous materials certification.

Emergency medical training presented a different scenario. Under state law, anyone who provides emergency medical care must be licensed by the state. To qualify for a license, the National Registry of Emergency Medical Technicians must certify the individual as an EMT – basic (“Code of Administrative,” 1998). The certification process includes 120 hours of instruction and successful completion of a written test and practical exam (P. Plummer, personal communication, April 14, 1999). Within the Dover Fire & Rescue Service, a number of employees are currently certified as an EMT – basic level.

The fact the student live-ins would be required to meet the same minimum training requirements as full-time personnel would prevent a situation where untrained and uncertified personnel would be working with trained and certified personnel. This would go a long way toward providing adequately trained student firefighters and EMT’s for the community and to allay the fears of full-time personnel.

The fact that there was now quantitative documentation available to prove that the student staffing would result in a savings of \$106,970, in the first two years of operation, would do much to gain additional support for the program from the City Council. It is no wonder that Brock (personal communication, April 15, 1999) described the Amherst, MA, program as “a win-win situation” and LeFever (personal communication, April 22, 1999) commented that “everyone wins,” when describing his department’s student program.

The significant findings of this research project was that the student live-in program can provide eight, certified Firefighter/EMT college students, working an average of 21 hours per week, at a two-year cost of \$288,247. This cost included the annual bond payment for the living space addition to the South End Fire Station. The cost to hire four full-time employees, to provide coverage 365 days a year for two years, would cost \$395,217. The

two-year cost difference was calculated to be \$106,970, in favor of the student live-in program.

Hoyle (1991) concluded, "The concept **DOES WORK!** Many municipalities and colleges already have proved it. All it takes is a dream, some initiative, and a little innovative planning" (p. 16).

RECOMMENDATIONS

Based on the research and procedures followed in this paper, it is concluded that the student live-in program is significantly more cost-effective than the traditional method of staffing using full-time employees. The Dover Fire & Rescue Service is currently on pace to respond to a 5% increase in calls for service in 1999 and no decrease in calls over the next few years are expected. To meet the needs of the citizens calling for service, the department must increase staffing. It is recommended that the fire department administration support the more cost-effective method of using college students to staff emergency equipment in exchange for room and board.

The City Charter does not currently permit the use of student firefighter/EMT's because no classification for Student Firefighter/EMT is contained in the city's Merit Plan. The department administration should work with the city's Legal Bureau and City Manager's Officer to draft a resolution to make the necessary changes to the Merit Plan to reflect the addition of a classification for Student Firefighter/EMT.

It is further recommended that the fire department administration meet with representatives of the Dover Professional Firefighter Association, IAFF Local 1312, and the Dover Professional Fire Officers Association, IAFF Local 2909, to openly discuss the purpose, use and scope of anticipated duties to be performed by the college students.

Additionally, the fire department administration should assure the union representatives that students would not be used to fill scheduled or unscheduled vacancies of full-time personnel or negotiate to adopt contract language to the contrary through the normal negotiation process.

Although there are no national standards that would provide direction for initiating a student live-in program, it is recommended that the fire department administration submit the *Dover Fire & Rescue Service, Student Live-in Program Proposal* to the Dover City Council for review and acceptance. Acceptance of this proposal will provide the framework for the student live-in proposal.

Once the program proposal is approved by the City Council, it is recommended that the fire department administration meet with officials from the University of New Hampshire to explain the student live-in program. The department administration should work to address any concerns the University may have and to solicit the University's support for the program through University brochures and its Internet site.

It is recommended that the fire department administration meet with the City Council to explain the cost benefits associated with using college live-in students and request advanced funding in FY2000 for architectural design costs for the addition to the South End Station. Mr. Philip Kendrick (personal communication, April 27, 1999) indicated that architectural design costs would be about 7% of the construction cost, therefore, it is recommended that the fire department request \$21,000 for the design of the student living quarters addition to the South End Station. It is recommended that the design be completed by November 1, 1999.

Once the addition has been designed, it is recommended that the fire department administration use the specifications from the design to solicit a request for proposals for construction of the addition by January 1, 2000. The design would also be used to determine the necessary furniture, appliances, and equipment to furnish the addition. The fire department administration should then adjust its requested appropriation for the FY2001 Capital Improvement Program (CIP) to reflect the cost of construction, site evaluation and preparation, 15% for a contingency fund and the cost of contents.

Upon appropriation of funds by the City Council through the CIP, it is recommended that construction of the addition begin in the spring of 2000. As construction progresses, the fire department administration should develop comprehensive rules and regulations for the student live-in program. The administration should also begin recruitment efforts to train, certify, and house eight students for the start of classes at the University of New Hampshire in the fall of 2000.

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Sample Letter to State Training Directors

October 27, 1998

Name
Affiliation
Address
City, State Zip

Dear Name:

In the form of introduction, my name is Ronald Clymer and I am an Assistant Chief with the City of Dover Fire & Rescue Service, in New Hampshire. The New Hampshire Fire Service Training Director, Rick Mason, gave me your name as a point of contact for a project I am working on. As a third year National Fire Academy Executive Fire Officer student, I am doing research on the cost-effectiveness of initiating a new program of providing room and board to college students in exchange for staffing fire and/or EMS apparatus.

If you could provide a list of any departments in your state that are currently using college students to staff fire or EMS apparatus, I would appreciate it. What would help considerably would be if you could provide the name of the department, a point of contact, address, telephone number and if possible, an e-mail address. If you like, you could respond by mail, fax or e-mail as follows:

City of Dover Fire & Rescue
Assistant Chief Ronald Clymer
288 Central Avenue
Dover, NH 03820-4169

Fax: 603-743-6146
E-mail: ron.clymer@ci.dover.nh.us

Thank you in advance for your assistance in this matter. I would like to receive the information as soon as possible. In return for your assistance, I would be happy to provide your agency with a list of all the programs I am made aware of; just let me know when you respond.

Yours truly,

Ronald E. Clymer
Assistant Chief

Appendix B

Mailing List for State Training Directors

Mr. Bill Langston, Exec. Director
Alabama State Fire College
2015 McFarland Blvd. East
Tuscaloosa, AL 35404

Mr. Mark Barker, Administrator
Fire Service Training
5700 East Tudor Road
Anchorage, AK 99507-1225

Mr. Bob Costello, Director
Fire Service Training
Dept of Bldg. & Fire Safety
Office of State Fire Marshall
99 East Virginia, Suite 100
Phoenix, AZ 85004

Mr. Thomas Forbes, Director
Arkansas Fire Academy, SAU-Tech
P.O. Box 3499
East Camden, AR 71701

Division Chief Art Cota
CDF State Fire Training
PO Box 944246
Sacramento, CA 94244-2460

Mr. Dean W. Smith, Director
Colorado Division of Fire Safety
P.O. Box 158
Palisade, CO 81526

Mr. Andy Ouellette, Director
CT Fire Academy
P.O. Box 3383
Windsor Locks, CT 06096

Mr. Joseph Murabito, Director
Delaware State Fire School
1461 Chestnut Grove Road
Dover, DE 19904

Mr. Randy Napoli, Superintendent
Bureau of Fire Standards and Training
Division of State Fire Marshal
11655 Northwest Gainsville Road
Ocala, FL 34482-1486

Mr. David Pritchett, Director
Georgia Fire Academy
1000 Indian Springs Drive
Forsyth, GA 31029-9599

Mr. Anthony Lopez, Jr. Chair
Hawaii State Fire Council
3375 Koapaka Street, Suite H-425
Honolulu, HI 96819-1869

Mr. Jim Straseske, Interim Director
Fire Service Institute Building
University of Illinois
11 Gerty Drive
Champaign, IL 61820

Mr. Ivan Nevil, Director
Indiana Government Center
Indiana State Fire Marshal's Office
402 West Washington Street
Indianapolis, IN 46204

Director Gary Wilson
Continuing Education Building
Fire Service Training
University of Kansas
Lawrence, KS 66044

Mr. Steve Calhoun, Program Director
Fire & Rescue Training Branch
2019 CPT, 500 Mero Street
Frankfort, KY 40601

Mr. Alan Walker, Director
Division of Continuing Education
LSU Firemen Training Program
6868 Nicholson Drive
Baton Rouge, LA 70820

Mr. Stephen Willis, State Administrator
S.M.T.C
Fire Training & Education
Fort Road
South Portland, ME 04106-9678

Mr. Stephen Edwards, Director
Maryland Fire & Rescue Institute
University of Maryland
College Park, MD 20742

Mr. Stephen Coan, Director
MA Firefighing Academy
State Road, Box 1025
Stow, MA 01775

Mr. Gregory Kirt, Director
Michigan Firefighter's Trng Council
7150 Harris Drive
Lansing, MI 48913

Mr. Adam Piskura, Director
MN State Tech. Colege System
550 Cedar Street
St. Paul, MN 55101

Mr. William Warren, Director
Mississippi Fire Academy
#1 Fire Academy USA
Jackson, MS 39208

Mr. Bruce Piringar, Director
MO Fire & Rescue Trng. Institute
240 Heinkel Building-
University of Missouri
Columbia, MO 65211-0001

Mr. Joe D. Hanson, Chief Instructor
State Fire Marshal Training Div.
246 South 14 Street
Lincoln, NE 68508-1804

Mr. James Hawke, Superintendent
State Fire Marshal Division
Fire Marshal Training
Snyder Way
Carson City, NV 89710

Mr. John Brasko, Supervisor
Division of Fire Safety
Office of Training & Certification
101 South Broad Street, CN 809
Trenton, NJ 08625-0809

Mr. John Standefer, Director
NM Firefighters Training Agency
P.O. Box 239
Socorro, NM 87801

Mr. James Burns, State Fire Administrator
NY State Department of State
Office of Fire Prevention and Control
162 Washington Avenue
Albany, NY 12231

Mr. Tim Bradley, Deputy Commissioner
NC Fire & Rescue Services Division
P.O. Box 26387
Raleigh, NC 27611

Ms. Lois Hartman, Executive Secretary
ND Firemen's Association
PO Box 6127
Bismark, ND 58506-6127

Mr. A. Gregory Drew, Superintendent
Division of State Fire Marshal
Ohio Fire Academy
8895 East Main Street
Reynoldsburg, OH 43068

Mr. Steve George, Director
Fire Building
Fire Service Training
Oklahoma State University
Stillwater, OK 74078-0114

Ms. Nancy Trench, Asst. Director
Fire Building
Fire Service Training
Oklahoma State University
Stillwater, OK 74078-0114

Mr. Eriks Gablicks, Director
Standards & Training
Board of Public Safety
550 N. Monmouth Avenue
Monmouth, OR 97361

Mr. Timothy Dunkle, Administrator
State Fire Commissioner's Office
Pennsylvania State Fire Academy
1150 Riverside Drive
Lewiston, PA 17044-1979

Mr. Irving Owens, State Fire Marshall
Division of Fire Safety
272 West Exchange Street
Providence, RI 02903

Mr. Billy Frost, Superintendent
South Carolina Fire Academy
141 Monticello Trail
Columbia, SC 29203

Mr. Al Christie, Director
Fire Service Training
118 West Capitol
Pierre, SD 57501

Mr. Wallace Burke, Director
Tennessee State Fire School
1303 Old Fort Parkway
Murfreesboro, TN 37129-3312

Mr. Mike Wisby, Interim Division Head
Texas Engineering Extension Service
Fire Protection Training Division
Texas A & M University
College Station, TX 77843-8000

Mr. Steve Lutz, Director
Utah Valley State College
Utah Fire & Rescue Academy
3131 Mike Jensen Parkway
Provo, UT 84601

Mr. Wayne Babcock, Director
PO Box 53
Pittsford, VT 05763

Mr. John Fogg, Director
James Monroe Building
Dept. of Fire Programs
101 North 14th St., 18th Floor
Richmond, VA 23219

Mr. Roger Woodside
Asst. State Fire Marshall
General Administration Building
WA State Patrol, Fire Prot. Bureau
P.O. Box 42638
Olympia, WA 98504-2638

Mr. Joseph Hodges, Program Leader
State Fire Training Center
WV University
Fire Service Extension
P.O. Box 6610
Morgantown, WV 26506-6610

Mr. David Brooks, Director
310 Price Place
Fire Education & Training
P.O. Box 7874
Madison, WI 53707

Ms. Nancy Eagle, Training Coordinator
Herschler Bldg. 1W
Fire Prevention & Elec. Safety
122 W. 25th Street
Cheyenne, WY 82002

Mr. George Oster, Executive Officer
Fire Service Institute
Iowa State University
Ames, IA 50011-3100

Mr. Seldon Weedon, Director
MSU Fire Training School
2100 - 16th Avenue South
Great Falls, MT 59405-4997

Appendix C

Student Live-in Survey

1. Does your department currently use college students to augment staffing? _____
2. Does your department currently house college students in return for coverage? _____
3. What is your current suppression and EMS staffing?
Career _____ Call _____ Volunteer _____ Students _____
4. Do your students receive monetary compensation for work performed? _____
5. Are your students required to meet state or local certification requirements for
Fire _____ EMS _____ Hazardous Materials _____
6. Is your program open to both males and females? _____
7. Does each student have his or her own room for sleeping? _____
8. If not, how many students share a room? _____
9. Do your students staff apparatus jointly with career/call/volunteer personnel? _____
10. Are uniforms and protective clothing provided to the students by the department? _____
11. Are students scheduled for mandatory staffing assignments? _____
12. If so, how many hours a week is a student required to work? _____
13. During school vacations and breaks, are students scheduled to staff apparatus? _____
14. Are students covered by the department's worker's compensation if injured in or around the firehouse – "off duty"? _____
15. Are students required to attend periodic proficiency training provided by the department to help them to maintain their emergency provider skills? _____
16. If so, how many hours are they required each month? _____
17. Does the department provide facilities to the students for food preparation? _____
18. Are students provided meals or given an allowance to purchase food? _____

If additional information is needed, may I contact you or your staff? If so, please fill in the spaces below.

Name: _____ Rank: _____ Phone: _(____)_____

Department: _____ E-mail: _____

Thank you for your assistance.

Please return to: Ronald Clymer, Asst. Chief
288 Central Avenue
Dover, NH 03820 Fax: 603-743-6146

Cover Letter to Organizations Identified as Using Students

January 8, 1999

Rank, Name
Affiliation
Address
City, State Zip

Dear Rank, Name:

The City of Dover, New Hampshire, is currently exploring the possibility of initiating a college student live-in program to augment its fire and emergency medical services staffing. As a student of the National Fire Academy's Executive Fire Officer Program, I have chosen to complete an applied research project studying the cost-effectiveness of implementing such a program. In the course of my preliminary research, your department was identified as having some form of student live-in program. As such, I would be most appreciative if you or your staff would complete and return the enclosed survey by February 12, 1999.

In addition, if you could send any supporting documentation that you feel would be helpful in explaining your program, it too would be appreciated. Specifically, I am look to obtain information which would help me to determine the costs associated with starting and running a student live-in program. I am also interested in Standard Operating Procedures or Guidelines, sample student contracts, bargaining agreement language and student evaluation criteria.

Your willingness to share information from your program is very much appreciated.

Yours truly,

Ronald E. Clymer
Assistant Chief

Enclosure

Mailing List to Organizations Identified as Using Students

Chief Nancy Furlong
Alfred Vol. Fire Department
8 South Main Street
Alfred, NY 14802

Lt. Peter Massaro
Allingtown Vol. Fire Association
PO Box 26484
West Haven, CT 06516

Asst. Chief Patrick Brock
Amherst Fire Department
PO Box 654 No. Pleasant St.
Amherst, MA 01004

Mr. Curt Dowling
Andover Vol. Fire Department
11 School Road PO Box 2
Andover, CT 06232

Team Leader Horace Clanton
Auburn Fire Department
359 E. Magnolia Ave
Auburn, AL 36830

Chief Roger Belhumeur
Auburn Fire Department
47 Auburn Street
Auburn, MA 01501

Captain Peter Ribble
Bend Fire Department
5 NW Minnisota Avenue
Bend, OR 97701

Asst. Chief Ken Hines
Boone Fire Protection Districts
1520 Business Loop 70 West
Columbia, MO 65202

Capt. Larry Tovani
Butte College
3536 Butte Campus Drive
Oroville, CA 95965

Chief Peter Waselchuk
Caledonia Fire Department
6900 Nicholson Road
Caledonia, WI 53108-9648

Chief Larry Langley
City of Auburn Fire Department
359 E. Magnolia
Auburn, AL 36830

Mr. Daniel Rowland
Colchester Hayward Fire Dept
52 Old Hartford Road
Colchester, CT 06415

Mr. Tom Corporandy
College of the Siskiyous
800 College Avenue
Weed, CA 96094

Sargeant Michael Mann
College Park Fire Department
8115 Baltimore Ave
College Park, MD 20740

Mr. George Melendrez
Columbia College
PO Box 1649
Columbia, CA 95310

Chief Darrell Smith
Dona Ana County Fire District 3
Box 30001 Dept 3545
Las Cruces, NM 88003

Chief David Fulmer
Fitchburg Fire Department
5791 Lacy Road
Fitchburg, WI 53711

Chief G. Scott Waldron
Frenchtown Rural Fire District
PO Box 119
Frenchtown, MT 59834

Deputy Chief Dick Gilmore
Gilmanton Fire Dept
PO Box 128
Gilmanton, NH 03837

Chief Bob Lefebvre
Gorham Fire & Rescue Dept
270 Main Street
Gorham, ME 04038

Chief Mark Heling
Grand Chute Fire Department
502 W. Northland Ave
Appleton, WI 54911-1928

Chief Jim Ellis
Holden Fire Dept
570 Main St., PO Box 490
Holden, ME 04429

Deputy Chief Steve Carrier
Laconia Fire Dept
848 North Main St
Laconia, NH 03246

Mr. Karl Smith
Los Angeles Valley College
6800 Fulton Avenue
Van Nuys, CA 91401

Chief David Bloom
Madison Fire Department
2120 Fish Hatchery Road
Madison, WI 53713

Asst. Chief James Adams
Manchester FD Eighth Utilities
District
32 Main Street
Manchester, CT 06040

Commander Allan Kluever
Mankato Dept of Public Safety
Fire Bureau
710 South Front Street
Mankato, MN 56001

Chief Eric Dahl
Maple Bluff Fire Department
18 Oxford Place
Madison, WI 53704

Chief Charles Lundfelt
Moscow Fire Department
603 South Main St
Moscow, ID 83843

FF Steve McGraw
Moyers Corner Fire Dept
7697 Morgan Road
Liverpool, NY 13090

Chief Ron Marley
Shasta College
PO Box 496006
Redding, CA 96049

FF Adrian Jewett
Oregon City Fire Dept
624 Seventh Street
Oregon City, OR 97007

Chief Tom DeMeuse
Shorewood Hills Fire Dept
810 Shorewood Blvd
Madison, WI 53705

Mr. Robert Scalzo
Phoenix Hose Company No. 8
14 Well Avenue
Danbury, CT 06810

Capt. Paul Richards
South Davis Utah Fire Dept
PO 870039
Woodscross, UT 84087

Capt. Tracy Lyon
Pierce County Fire District 16
8911 Key Peninsula HWY, KPN
Lakebay, Washington 98349

Chief John True
South Portland Fire Dept
684 Broadway
So. Portland, ME 04106

Chief Paul Guilbert
Pleasant Prairie Fire & Rescue
8044 88th Avenue
Pleasant Prairie, WI 53158

Asst. Chief Phil Davis
University of CA-Davis
One Shields Avenue
Davis, CA 95616-8597

Chief Gert Zoutendijk
Polk County Fire District No. 1
Independence, OR 97351

Deputy Chief Francis Williams
University of Conn. Fire Dept
126 North Eagleville Rd
Storrs, CT 06269

Chief Fred Brandenburg
Richmond Fire Department
359 West Main Street
Richmond, KY 40475

Deputy Chief Mike Holzmüller
University of Fairbanks
Fire Department
Fairbanks, AK 99775-5540

Chief Alton "Whitey" Meserve
Saco Fire Department
300 Main Street
Saco, ME 04072

Chief Charles Hammond
Windham Fire & Rescue Dept
375 Main Street
Windham, ME 04062

Chief Jared Zwicke
San Joaquin Delta College
5151 Pacific Avenue
Stockton, CA 90405

Chief Everett Ward
Wrightsville Beach Fire Dept
PO Box 251
Wrightsville Beach, NC 28480

Chief Robert Carson
Scarboro Fire & Rescue
246 US Route 1
Scarboro, ME 04070

Capt. Jeff Julian
Yuba City Fire Department
2088 North Beale Road 63
Marysville, CA 95901

Chief John Lockamy
Seagate Vol. Fire Department
6102 Oleander Drive
Wilmington, NC 28403

Appendix F

Student Live-in Survey Responses

Student Live-in Survey Questions 1-8

| | Does dept use college students | Does dept provide housing | What is current staff- Career | What is current staff -Call | What is current staff- Volunteer | What is current staff - Students | Are students compensated | Is fire certification required | Is EMS certification required | Is HazMat certification required | Program open to males and females | Do student have single rooms | How many students to a room |
|-----------------------------------|--------------------------------|---------------------------|-------------------------------|-----------------------------|----------------------------------|----------------------------------|--------------------------|--------------------------------|-------------------------------|----------------------------------|-----------------------------------|------------------------------|-----------------------------|
| Alfred Volunteer FD | N | - | - | - | - | - | - | - | - | - | - | - | - |
| Allingtoun Vol. Fire Assoc. | Y | N | Y | - | Y | - | N | Y | Y | N | Y | N | 1 or 2 |
| Amherst Fire Department | Y | Y | 35 | 22 | - | 18 | - | Y | Y | Y | Y | N | 2 |
| Andover Volunteer FD | N | N | - | - | All | N | - | - | - | - | - | - | - |
| Auburn, MA Fire Department | Y | Y | 5 | 21 | - | 6 | N | Y | Y | Y | Y | N | - |
| Bend Fire Department | N | N | 45 | - | 45 | 18 | N | Y | Y | Y | Y | N/A | N/A |
| Boone Fire Protection Dist. | Y | Y | 12 | - | 210 | 25 | N | Y | Y | Y | Y | Y | - |
| Butte College | N | N | - | - | - | - | - | Y | Y | Y | Y | N | - |
| Caledonia Fire Department | N | N | Y | Y | - | - | N | Y | Y | - | Y | N | - |
| City of Auburn, AL FD | Y | Y | 33 | - | - | 54 | Y | Y | - | Y | Y | Y | - |
| Colchester Hayward FD | - | - | - | - | - | - | - | - | - | - | - | - | - |
| College of the Siskiyous | Y | Y | varies | varies | varies | varies | N | Y | N | N | Y | some | - |
| College Park FD | Y | Y | - | - | - | - | N | Y | Y | Y | Y | N | 2 |
| Columbia College | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dona Ana County Fire District 3 | Y | Y | 3 | - | - | 13 | Y | - | Y | - | Y | 6 | 2 |
| Fitchburg Fire Department | Y | Y | 6 | 40 | - | 6 | Y | Y | N | Y | Y | N | 2 |
| Frenchtown Rural Fire District | Y | Y | 4 | - | 70 | 6 | N | Y | Y | Y | Y | Y | - |
| Gilmanston Fire Dept | Y | N | 3 | 20 | - | 7 | Y | Y | Y | N | Y | 5 | 2 |
| Gorham Fire & Rescue Dept | Y | Y | 5 | 150 | - | 12 | Y | Y | Y | - | Y | N | 2-4 |
| Grand Chute Fire Department | Y | N | 4 | 57 | - | 2 | N | Y | N | N | Y | N | - |
| Holden Fire Dept | Y | Y | 1 | 29 | 0 | 2 | Y | Y | Y | N | Y | N | 2 |
| Laconia Fire Dept | Y | Y | 31 | 20 | - | 5 | Y | Y | Y | Y | Y | N | 2 |
| Los Angeles Valley College | N | - | - | - | - | - | - | - | - | - | - | - | - |
| Madison Fire Department | Y | Y | 9 | - | 54 | 3 | Y | Y | Y | soon | Y | Y | - |
| Manchester FD 8th Utilities Dist. | N | N | 0 | 0 | 104 | 0 | - | - | - | - | - | - | - |

Student Live-in Survey Responses

Student Live-in Survey
Questions 1-8

| | Does dept use college students | Does dept provide housing | What is current staff- Career | What is current staff -Call | What is current staff- Volunteer | What is current staff - Students | Are students compensated | Is fire certification required | Is EMS certification required | Is HazMat certification required | Program open to males and females | Do students have single rooms | How many students to a room |
|---------------------------------|--------------------------------|---------------------------|-------------------------------|-----------------------------|----------------------------------|----------------------------------|--------------------------|--------------------------------|-------------------------------|----------------------------------|-----------------------------------|-------------------------------|-----------------------------|
| Mankato Dept of Public Safety | Y | Y | 18 | - | 22 | 12 | Y | Y | Y | Y | Y | Y | - |
| Maple Bluff FD | Y | Y | 3 | - | 20 | 4 | Y | Y | Y | N | Y | N | up to 4 |
| Moscow Fire Department | Y | Y | 3 | - | 75 | 16 | N | Y | - | Y | Y | N | 2 |
| Moyers Corner FD | Y | Y | - | - | 120 | 7 | N | Y | N | N | Y | N | 2 |
| Oregon City Fire Department | N | N | 18 | - | - | 3 | Y | Y | Y | N | Y | N | - |
| Phoenix Hose Co. N. 8 | N | N | - | - | 2 | - | N | Y | Y | Y | Y | N | - |
| Pierce County Fire District 16 | Y | Y | 20 | - | 40 | 12 | N | Y | Y | Y | Y | Y | - |
| Pleasant Prairie Fire & Rescue | Y | Y | 1 | 1 | - | 1 | Y | Y | Y | - | Y | N | - |
| Polk County Fire District No. 1 | Y | Y | - | - | - | 8 | N | Y | Y | - | Y | N | - |
| Richmond Fire Department | N | N | 53 | - | 25 | 9 | Y | Y | N | N | Y | N | 2 |
| Saco Fire Department | Y | Y | 27 | 28 | 18 | 2 | Y | Y | Y | - | Y | Y | - |
| San Joaquin Delta College | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Scarboro Fire & Rescue Dept | Y | Y | 12 | 54 | 0 | 6 | N | Y | Y | Y | Y | Y | 1 |
| Seagate Volunteer FD | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Shasta College | Y | N | 1 | - | - | 22-30 | N | Y | Y | Y | Y | N | - |
| Shorewood Hills FD | Y | Y | 2 | - | 35 | 4 | N | Y | Y | Y | Y | N | 4 |
| South Davis Utah FD | N | - | - | - | - | - | - | - | - | - | - | - | - |
| South Portland Fire Dept | N | Y | 57 | 100 | - | 2 | Y | Y | - | Y | N | N | 2-3 |
| University of Alaska, Anchorage | - | - | - | - | - | - | - | - | - | - | - | - | - |
| University of CA-Davis | Y | Y | 17 | - | - | 13 | Y | Y | Y | Y | - | Y | - |
| University of Conn. FD | Y | N | 20 | - | - | - | Y | - | - | - | N | N | N |
| University of AK, Fairbanks | Y | Y | 6 | - | - | 21 | Y | Y | Y | - | Y | N | 2 |
| Windham Fire & Rescue Dept | Y | Y | 6 | 89 | - | 7 | Y | Y | Y | Opt | Y | N | 2 |
| Wrightsville Beach FD | Y | Y | 10 | - | - | 5 | Y | Y | Y | Y | Y | Y | - |
| Yuba City Fire Department | Y | Y | 28 | 3 | - | 6 | Y | Y | Y | Y | Y | Y | 1 |

Live-in Survey

How many students in school

| | Do students work during school breaks | If so, how many hours a week |
|--------|---------------------------------------|------------------------------|
| varies | Y | |
| 24-48 | Y | |
| - | - | |
| 19 | Y | |
| 12 | Y | |
| 24 | Y | |
| 20 | N | |
| 45 | N | |
| 48 | N | |
| 16 | N | |
| - | N | |
| - | - | |
| 56 | Y | |
| - | - | |
| 53 | Y | |
| - | N | |
| 56 | N | |
| - | N | |
| 24 | N | |
| - | N | |
| - | N | |
| 42 | N | |
| - | N | |
| - | - | |

Student Live-in Survey Responses

Student Live-in Survey
Questions 9-18

| | Students staff with career/call/vol personnel | Uniforms and protective clothing provided by dept | Do students have mandatory assignments | If so, how many hours a week | Do students work during school breaks | Students covered by workers' comp off duty | Students attend proficiency training | If so, hours required monthly | Does dept provide kitchen facilities | Meals or food allowance provided |
|--------------------------------|---|---|--|---------------------------------|---|--|--|----------------------------------|---|--|
| Mankato Dept of Public Safety | Y | Y | Y | 14 | Y | N | Y | 3-15 | Y | sometimes |
| Maple Bluff FD | Y | Y | Y | 54 | Y | Y | Y | 6 | Y | N |
| Moscow Fire Department | Y | Y | Y | - | N | Y | Y | 12 | Y | N |
| Moyers Corner FD | Y | Y | Y | 25 | Y | Y | Y | 15 | Y | N |
| Oregon City Fire Department | Y | N | N | - | N | N | Y | varies | Y | N |
| Phoenix Hose Co. N. 8 | Y | Y | Y | - | Y | Y | Y | 4 | - | Y |
| Pierce County Fire District 16 | Y | Y | N | - | N | N | Y | 6 | Y | N |
| Pleasant Prairie Fire & Rescue | Y | Y | Y | 24 | N | Y | Y | 10 | Y | N |
| Polk County Fire District N. 1 | Y | - | - | many | - | - | - | - | Y | - |
| Richmond Fire Department | Y | if needed | N | - | N | N | Y | - | Y | N |
| Saco Fire Department | Y | Y | Y | 30 | N | Y | Y | 8 | Y | N |
| San Joaquin Delta College | - | - | - | - | - | - | - | - | - | - |
| Scarboro Fire & Rescue Dept | Y | Y | Y | 45 | Y | Y | Y | Y | Y | N |
| Seagate Volunteer FD | - | - | - | - | - | - | - | - | - | - |
| Shasta College | N | Y | Y | 56 | Y | Y | Y | 40 | Y | N |
| Shorewood Hills FD | Y | Y | Y | 55 | Y | Y | Y | 15 | Y | Y |
| South Davis Utah FD | - | - | - | - | - | - | - | - | - | - |
| South Portland Fire Dept | Y | Y | N | - | N | N | Y | 3 | Y | N |
| University of Alaska | - | - | - | - | - | - | - | - | - | - |
| University of CA-Davis | Y | Y | Y | 12 | N | N | Y | 4 | Y | N |
| University of Conn. FD | N | N | N | N | N | N | N | N | N | N |
| University of Fairbanks FD | Y | Y | Y | 56 | Y | N | Y | 16 | Y | N |
| Windham Fire & Rescue Dept | Y | Y | N | N | N | Y | Y | 8-14 | Y | N |
| Wrightsville Beach FD | Y | Y | Y | 22 | Y | Y | Y | 10 | Y | N |
| Yuba City Fire Department | Y | N | Y | 10-24 | Y | Y | Y | 20 | Y | N |

**Dover Fire & Rescue Service
Student Live-in Proposal**

Operation Guidelines

It is proposed that eight students would be accepted into the student live-in program. To provide fire and emergency equipment staffing for 24 hours a day, seven days a week, while school is in session, eight students would be necessary. This would require each student to work an average of 21 hours each eight-week cycle. Students interested in participating in the program would be required to complete and pass the Dover Fire & Rescue Service entrance examination process to include a medical physical, physical agility test, written exam and interview.

Students who are accepted into the program would be required to attend both New Hampshire Firefighter I (184 hours) and Hazardous Materials First Responder Operations Level (24 hours) and pass the State of New Hampshire certification for both prior to full acceptance into the program. Provisionally, student Firefighters would be required to attend four weeks of certification training provided by the Dover Fire & Rescue Service, to be held in the month of August, just prior to the beginning of the school year. An exception to this requirement would be granted to students who already possess State of New Hampshire certification as Firefighter I and Hazardous Materials Operations Level.

Students will be required to enroll in an Emergency Medical Technician certification course, at their own expense, during their first semester in the program. Continuance in the program beyond the first semester will be contingent on passing and maintaining all requirements of the State of New Hampshire for licensure as an EMT – basic. An

exception to the requirement to enroll in an EMT course would be granted to students who already possess State of New Hampshire certification as and EMT - basic.

Students will work alongside full-time Fire & Rescue Employees, staffing either fire or medical units, as determined by the City. Students will work either a 10-hour shift or a 14-hour shift, not to exceed 28 hours per week, but averaging 21 hours per week over an eight-week cycle. Students will be required to work their scheduled shift rotation from the beginning of the first semester until the commencement of the second semester, with the exception of the school break between the end of the first semester and the start of the second semester. Further, students may be required to participate in additional fire or EMS training, other than during their scheduled work shift, as determined by the administration of the department.

Students may be required to perform general maintenance and upkeep of facilities, apparatus, and equipment; clean and wash appliances, floors and work areas; care for station grounds; make minor repairs of equipment and generally perform all duties expected of a full-time career Dover Firefighter/EMT.

Students will not be used to fill vacancies created by full-time personnel and students will not receive monetary compensation for staffing apparatus.

Benefit Guidelines

In return for providing coverage of fire or medical equipment, it would be the intention of the City to provide non-monetary benefits to the students who participate in the program. Students will be provided with rooming accommodations at the South End Fire Station.

Each student would be provided a single bedroom with approximately 120 square feet of living space and a single bathroom, accessible only from their bedroom. Each room will be equipped with a single bed, lamp, nightstand, desk, desk lamp and chest-of-drawers. The City will pay all associated utility bills, with the exception of telephone service. Parking for students with an automobile will be limited to one vehicle, to be parked at the South End Fire Station.

The City will provide, without cost to the student, facilities for the storage and cooking of food, a television room, reasonable storage of personal items and a quiet area for study purposes. Laundry facilities will also be provided at the South End Station. The City will assume all costs for equipment and supplies.

Further, the City will provide, at no cost to the student, Firefighter Level I and Hazardous Materials First Responder Operations Level training. Students enrolled in the training will be eligible to reside in the fire station for the duration of the training. Upon successful completion of the training program, each student will be issued two complete work uniforms and a complete set of firefighter turnout equipment, of the same specifications as full-time employees, at no cost to the student. The City will maintain worker's compensation insurance for all students, in accordance with all applicable state laws, at no cost to the student.

Appendix H
FY 2001 and FY 2002 Student Live-in Operating Budget

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DOVER FIRE & RESCUE
Proposed Budget For Eight Live In Students FY 2001

| Division: Supression | | | Fund 1000 |
|----------------------|--|--|---------------|
| DETAIL EXPLANATION | | | |
| Cat. | Object | Description | |
| 4100 | Personal Services - Wages | | |
| | 4130 | Overtime Pay | 82,353 |
| | | 3192 hours @ \$23.57 | 75,235 |
| | | 208 training hours @ \$34.22 | 7,118 |
| | | Total Personal Services- Wages | 82,353 |
| 4200 | Personal Services- Benefits | | |
| | 4230 | Retirement | 4,793 |
| | | Cost of NH Retirement System pymts | |
| | | 5.82% of salary | |
| | 4260 | Workers' Comp Insurance | 6,794 |
| | | Premium payments to Workers' Comp Ins | |
| | | Total Personal Services-Benefits | 11,587 |
| 4300 | Purchased Professional and Technical Services | | |
| | 4336 | Medical Services | 2,000 |
| | | Medical Exams 8 @ \$250 | |
| | 4312 | Management Services | 1,000 |
| | | Total Professional and Technical Services | 3,000 |
| 4400 | Purchased Property Services | | |
| | 4411 | Water and Sewer Expense | 1,944 |
| | 4420 | Waste Collection Services | 900 |
| | | 12 months @ \$75 | |
| | 4540 | Advertising | 450 |
| | 4423 | Cleaning Services | 200 |
| | | Total Purchased Property Services | 3,494 |

FY 2001 and FY 2002 Student Live-in Operating Budget

| Cat. | Object | Description | |
|-------------------------------------|-----------------------------------|---------------------------------|----------------|
| 4600 | Supplies | | |
| | 4615 | Clothing & Uniforms | 13,400 |
| | | Turnout Gear 8 @ \$900 | 7,200 |
| | | Boots 8 @ \$100 | 800 |
| | | Gloves, Mittens & Hoods | 320 |
| | | Forestry Jackets 8 @ \$45 | 360 |
| | | Uniform Pants \$50/each | 800 |
| | | Uniform Shirts \$50 each | 1,600 |
| | | Jackets with Monogram \$65 each | 520 |
| | | Helmets 4 @ \$225 | 1,800 |
| | 4621 | Natural Gas | 427 |
| | 4622 | Electricity | 2,088 |
| | 4640 | Books & Publications 8 @ 200 | 1,600 |
| | 4561 | Maint Supplies-Bldg | 450 |
| | Total Supplies | | 17,965 |
| 4900 | Other Financing Uses | | |
| | 4914 | Transfer to Capital Projects | 36,394 |
| | Total Other Financing Uses | | 36,394 |
| TOTAL SUPPRESSION for FY2001 | | | 154,793 |

DOVER FIRE & RESCUE

Proposed Budget For Eight Live In Students FY 2002

Division: Supression

Fund 1000

DETAIL EXPLANATION

| Cat. | Object | Description | |
|-------------|--|--|---------------|
| 4100 | Personal Services - Wages | | |
| | 4130 Overtime Pay | | 77,151 |
| | | 3192 hours @ \$24.17, 2.5% increase | 77,151 |
| | Total Personal Services- Wages | | 77,151 |
| 4200 | Personal Services- Benefits | | |
| | 4230 Retirement | | 4,490 |
| | | Cost of NH Retirement System pymts 5.82% of salary | |
| | 4260 Workers' Comp Insurance | | 6,934 |
| | | Premium payments to Workers' Comp Ins 2.5% increase | |
| | Total Personal Services-Benefits | | 11,424 |
| 4400 | Purchased Property Services | | |
| | 4411 Water and Sewer Expense | | 1,944 |
| | 4420 Waste Collection Services | | 900 |
| | | 12 months @ \$75 | |
| | 4540 Advertising | | 0 |
| | 4423 Cleaning Services | | 200 |
| | Total Purchased Property Services | | 3,044 |

FY 2001 and FY 2002 Student Live-in Operating Budget

| Cat. | Object | Description | |
|--------------------------------------|-----------------------------------|------------------------------|----------------|
| 4600 | Supplies | | |
| | 4615 | Clothing & Uniforms | 2,400 |
| | | Uniform Pants \$50/each | 800 |
| | | Uniform Shirts \$50 each | 1,600 |
| | 4621 | Natural Gas | 438 |
| | 4622 | Electricity | 2,140 |
| | 4640 | Books & Publications 8 @ 200 | 0 |
| | 4561 | Maint Supplies-Bldg | 462 |
| | Total Supplies | | 5,440 |
| 4900 | Other Financing Uses | | |
| | 4914 | Transfer to Capital Projects | 36,394 |
| | Total Other Financing Uses | | 36,394 |
| TOTAL SUPPRESSION for FY 2002 | | | 133,453 |

Appendix I
FY 2001 and FY2002 Hiring Option Operating Budget

75

DOVER FIRE & RESCUE

Proposed Budget for Four Additional Full-time Employees FY 2001

Division: Supression

Fund 1000

DETAIL EXPLANATION

| Cat. | Object | Description | |
|-------------|------------------------------------|---|----------------|
| 4100 | Personal Services - Wages | | |
| | 4115 | Hourly Employees | 127,468 |
| | | 4 Firefighters/EMT's | 114,877 |
| | | RFT @ 42 hr/wk=\$28,719.27 yearly | |
| | | Holiday pay, eleven 12 hour days | 6,943 |
| | | Incentive (college & career) | 4,048 |
| | | EMT/EOA 1/2 year | 1,600 |
| | | Total Personal Services- Wages | 127,468 |
| 4200 | Personal Services- Benefits | | |
| | 4211 | Health Insurance | 33,656 |
| | | Premium payments to NHMA Health Ins | |
| | | \$8,414 per family plan | |
| | 4212 | Dental Insurance | 2,082 |
| | | Premium payments to Dental carrier | |
| | 4213 | Life Insurance | 371 |
| | | Premium payments to NHMA for Life Ins | |
| | | 4 @ \$92.66 | |
| | 4225 | Medicare | 2,035 |
| | | Cost of Medicaid payments | |
| | | 4 @ \$508.69 | |
| | 4230 | Retirement | 7,390 |
| | | Cost of NH Retirement System pymts | |
| | | 5.82% of salary | |
| | 4240 | Staff Development | 1,561 |
| | 4260 | Workers' Comp Insurance | 3,397 |
| | | Premium payments to Workers' Comp Ins | |
| | 4291 | Uniform & Cleaning Allowance | 84 |
| | | Clothing Allowance, prorated | |
| | | Total Personal Services-Benefits | 50,576 |

FY 2001 and FY2002 Hiring Option Operating Budget

| Cat. | Object | Description | |
|-------------|--|-------------|----------------|
| 4300 | Purchased Professional and Technical Services | | |
| | 4336 Medical Services | | 1,000 |
| | Medical Exams 4 @ \$250 | | |
| | 4312 Management Services | | 1,000 |
| | Total Professional and Technical Services | | 2,000 |
| 4400 | Purchased Property Services | | |
| | 4411 Water and Sewer Expense | | 243 |
| | Total Purchased Property Services | | 243 |
| 4600 | Supplies | | |
| | 4615 Clothing & Uniforms | | 8,200 |
| | Turnout Gear 4 @ \$900 | | 3,600 |
| | Boots 4 @ \$100 | | 400 |
| | Class "A" Uniforms 4 @ \$250 | | 0 |
| | Gloves, Mittens & Hoods | | 160 |
| | Forestry Jackets 4 @ \$45 | | 180 |
| | Uniform Pants \$50/each | | 800 |
| | Uniform Shirts \$50 each | | 1,600 |
| | Jackets with Monogram \$65 each | | 260 |
| | Helmets 4 @ \$225 | | 900 |
| | PT Gear 4 @ \$75 | | 300 |
| | Total Supplies | | 8,200 |
| | TOTAL SUPPRESSION for FY 2001 | | 188,487 |

FY 2001 and FY 2002 Hiring Option Operating Budget

DOVER FIRE & RESCUE**Proposed Budget for Four Additional Full-time Employees FY 2002**

Division: Supression

Fund 1000

DETAIL EXPLANATION

| Cat. | Object | Description | |
|-------------|---------------------------------------|--|----------------|
| 4100 | Personal Services - Wages | | |
| | 4115 | Hourly Employees | 137,785 |
| | | 4 Firefighters/EMT's | 123,047 |
| | | RFT @ 42 hr/wk=\$28,719.27 yearly | |
| | | Holiday pay, eleven 12 hour days | 7,490 |
| | | Incentive (college & career) | 4,048 |
| | | EMT/EOA Full year | 3,200 |
| | 4130 | Overtime Pay | 13,197 |
| | | Unscheduled overtime, substitutes for vacation, sick leave, etc Based on 136.5 hours @\$24.17, includes 2 week vacation, 3 personal days and dept average 2 sick days per year | |
| | Total Personal Services- Wages | | 150,982 |
| 4200 | Personal Services- Benefits | | |
| | 4211 | Health Insurance | 34,497 |
| | | Premium payments to NHMA Health Ins \$8,624.25 per family plan, 2.5% increase | |
| | 4212 | Dental Insurance | 2,134 |
| | | Premium payments to Dental carrier \$533.50 per family plan, 2.5 % increase | |
| | 4213 | Life Insurance | 371 |
| | | Premium payments to NHMA for Life Ins 4 @ \$92.66 | |
| | 4225 | Medicare | 2,083 |
| | | Cost of Medicaid payments 4 @ \$520.75, 2.5 % increase | |
| | 4230 | Retirement | 8,877 |
| | | Cost of NH Retirement System pymts 5.82% of salary | |

FY 2001 and FY 2002 Hiring Option Operating Budget

| Cat. | Object | Description | |
|--------------------------|--|---------------------------------------|----------------|
| | 4240 | Staff Development | 1,561 |
| | 4260 | Workers' Comp Insurance | 3,482 |
| | | Premium payments to Workers' Comp Ins | |
| | | 2.5 % increase | |
| | 4291 | Uniform & Cleaning Allowance | 500 |
| | | Clothing Allowance | |
| | Total Personal Services-Benefits | | 53,505 |
| 4400 | Purchased Property Services | | |
| | 4411 | Water and Sewer Expense | 243 |
| | Total Purchased Property Services | | 243 |
| 4600 | Supplies | | |
| | 4615 | Clothing & Uniforms | 2,000 |
| | | Class "A" Uniforms 4 @ \$250 | 1,000 |
| | | Uniform Pants \$50/each | 200 |
| | | Uniform Shirts \$50 each | 800 |
| | Total Supplies | | 2,000 |
| TOTAL SUPPRESSION | | for FY 2002 | 206,730 |

Appendix J
South End Addition Contents and Pricing

| | Item | Amount | Cost | Total |
|------------------------|-----------------------------|---------------|-------------|-----------------|
| Bedrooms | Single bed | 8 | \$430 | \$3,440 |
| | Nightstand | 8 | \$100 | \$800 |
| | Nightstand lamp | 8 | \$40 | \$320 |
| | Dresser | 8 | \$350 | \$2,800 |
| | Desk | 8 | \$200 | \$1,600 |
| | Chair | 8 | \$185 | \$1,480 |
| | Desk lamp | 8 | \$40 | \$320 |
| | Total | | | \$10,760 |
| Television Room | Three person couch | 2 | \$700 | \$1,400 |
| | Easy chair | 8 | \$300 | \$2,400 |
| | End tables | 4 | \$100 | \$400 |
| | Coffee tables | 2 | \$150 | \$300 |
| | 27 inch television | 1 | \$345 | \$345 |
| | Television stand | 1 | \$300 | \$300 |
| | Total | | | \$5,145 |
| Training Room | Folding tables- 6 ft | 6 | \$190 | \$1,140 |
| | Office chairs | 18 | \$75 | \$1,350 |
| | Monitor projection unit | 1 | \$3,995 | \$3,995 |
| | 25 inch television | 1 | \$285 | \$285 |
| | VCR | 1 | \$125 | \$125 |
| | Audiovisual cart | 1 | \$265 | \$265 |
| | Total | | | \$7,160 |
| Kitchen | 30 cubic ft Refrigerator | 3 | \$1,900 | \$5,700 |
| | Comm. Cooking range | 1 | \$4,200 | \$4,200 |
| | Oven | 1 | \$650 | \$650 |
| | Dishwasher | 1 | \$400 | \$400 |
| | Microwave | 1 | \$400 | \$400 |
| | Toaster oven | 1 | \$75 | \$75 |
| | Blender | 1 | \$35 | \$35 |
| | Dining tables & chairs | 2 | \$800 | \$1,600 |
| | Pots & pans | 1 | \$300 | \$300 |
| | Dishes for 12 | 1 | \$100 | \$100 |
| | Cooking and eating utensils | 1 | \$100 | \$100 |
| | Small appliances | 1 | \$300 | \$300 |
| | Total | | | \$13,860 |
| Utility Room | Heavy-duty washer | 1 | \$800 | \$800 |
| | Dryer | 1 | \$480 | \$480 |
| | Total | | | \$1,280 |
| Grand Total | | | | \$38,205 |

Amortization Payment Table

| No. | Payment Date | Beginning Balance | Interest | Principal | Ending Balance | Cumulative Interest |
|-----|--------------|-------------------|-----------|-----------|----------------|---------------------|
| 1 | 7/1/01 | 377,754.00 | 18,887.70 | 17,505.98 | 360,248.02 | 18,887.70 |
| 2 | 7/1/02 | 360,248.02 | 18,012.40 | 18,381.28 | 341,866.73 | 36,900.10 |
| 3 | 7/1/03 | 341,866.73 | 17,093.34 | 19,300.35 | 322,566.38 | 53,993.44 |
| 4 | 7/1/04 | 322,566.38 | 16,128.32 | 20,265.37 | 302,301.02 | 70,121.76 |
| 5 | 7/1/05 | 302,301.02 | 15,115.05 | 21,278.63 | 281,022.38 | 85,236.81 |
| 6 | 7/1/06 | 281,022.38 | 14,051.12 | 22,342.57 | 258,679.82 | 99,287.93 |
| 7 | 7/1/07 | 258,679.82 | 12,933.99 | 23,459.69 | 235,220.13 | 112,221.92 |
| 8 | 7/1/08 | 235,220.13 | 11,761.01 | 24,632.68 | 210,587.45 | 123,982.92 |
| 9 | 7/1/09 | 210,587.45 | 10,529.37 | 25,864.31 | 184,723.14 | 134,512.30 |
| 10 | 7/1/10 | 184,723.14 | 9,236.16 | 27,157.53 | 157,565.61 | 143,748.45 |
| 11 | 7/1/11 | 157,565.61 | 7,878.28 | 28,515.40 | 129,050.20 | 151,626.73 |
| 12 | 7/1/12 | 129,050.20 | 6,452.51 | 29,941.17 | 99,109.03 | 158,079.24 |
| 13 | 7/1/13 | 99,109.03 | 4,955.45 | 31,438.23 | 67,670.80 | 163,034.70 |
| 14 | 7/1/14 | 67,670.80 | 3,383.54 | 33,010.14 | 34,660.65 | 166,418.24 |
| 15 | 7/1/15 | 34,660.65 | 1,733.03 | 34,660.65 | 0.00 | 168,151.27 |